

Public Works

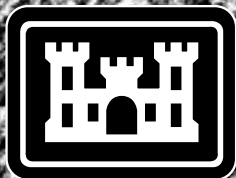
Digest

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In This Issue...

Environmental Successes



**US Army Corps
of Engineers®**



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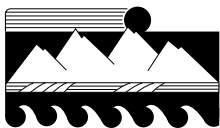
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Awards!

Environment

Army Chief of Staff 1999 Earth Day Message

The 1999 Army Earth Day theme is "America's Army — Sustaining the Land We Defend." This theme underscores the importance of maintaining the environment as we train and support our fighting force. Each of us — soldiers, civilians and family members — makes a valuable contribution to this effort every time we act responsibly as environmental stewards. The Army has a long-term commitment to environmental stewardship. It is essential to sustain our training land and ranges — not only to hone our warfighting skills today and in the future, but also to ensure our children and grandchildren have a clean environment in the 21st century.

When most of us think of being environmentally responsible, we think of recycling, car pooling and picking up litter. The Army does all of those things in garrison, and wherever possible, we make similar efforts in the

field. Commissioned officers plan training missions to reduce negative impacts on the land, noncommissioned officers teach soldiers to respect endangered wildlife in the field, our soldiers carry out their leaders' plans and policies, and environmental experts monitor training land and coordinate necessary repairs. By taking these extra steps, the Army maintains access to critical training areas while protecting natural and cultural resources. These proactive measures, along with a focus on pollution prevention, save millions of dollars that can be redistributed to other Army initiatives.

Our dedication to caring for the environment has not gone unnoticed. Last year, the Department of Defense awarded the Army eight of 15 possible Environmental Security awards. Those award winners, and everyone who makes a concerted effort to pro-

tect the environment and conserve resources, deserve our gratitude and praise.

Earth Day is an excellent time to renew our commitment to the preservation of the environment for the coming year. This April 22, I encourage you to take time to attend an Earth Day event, volunteer to help plan events for your installation, or simply look for small ways you can be more environmentally responsible in the course of your duties.

Earth Day fosters a sense of community by focusing on our shared environment. This sense of community is crucial to soldiers who are spread across the globe to "sustain the land we defend."

Soldiers Are Our Credentials!

Dennis J. Reimer
General, USA
Chief of Staff **PWD**

Secretary of the Army 1998 Environmental Award Winners

The winners of the Secretary of the Army 1998 Environmental Awards were recently announced in an official memorandum issued from the Pentagon.

The Army's Assistant Chief of Staff for Installation Management notified this year's winners on behalf of Louis Caldera, Secretary of the Army. A total of 17 awards — 10 installation, three team and four individual — will be presented this year during a Pentagon ceremony slated for April 26 at 3 p.m.

A press conference for all Army award winners will be held the morning of the Secretary of the Army ceremony at the Pentagon. The conference will allow print and broadcast journalists the opportunity to discuss Army environ-

mental programs with the 1998 Secretary of the Army award winners and those Army awardees who capture Secretary of Defense awards.

This year's winners include recognition of COL Frank Intini, the second soldier to receive the Army's environmental quality award, and Tobyhanna Army Depot, which captured honors for the fifth consecutive year.

Each year, the Secretary of the Army environmental awards recognize installation, team or individual efforts in Natural Resources Conservation, Cultural Resources Management, Environmental Quality, Pollution Prevention, Recycling and Environmental Cleanup.

Following are the 1998 winners for each award category:

Natural Resources Conservation

- **Winning installation of 10,000 acres or less: U.S. Army Garrison, Fort Belvoir, VA**

U.S. Army Garrison, Fort Belvoir, Virginia, received the Secretary of the Army 1998 Environmental Award for Natural Resources, Small Installation, for its superior programs which established cooperative partnerships with federal and civilian agencies, created a forestland corridor that protects migratory passage for various wildlife species, and served as a model for stream restoration and conservation programs.



Awards!

● **Winning installation of more than 10,000 acres: Camp Ripley, Army National Guard Training Site, MN**

Camp Ripley, Minnesota National Guard Training Site, received the Secretary of the Army 1998 Environmental Award for Natural Resources Conservation, Large Installation, for contributing to the military mission in providing professional management of more than 51,000 acres of biologically diverse lands.

● **Winning team: Missouri Army National Guard, Environmental Management Office, MO**

Missouri Army National Guard's Environmental Management Office received the Secretary of the Army 1998 Environmental Award for Natural Resources Conservation, Team, for the breadth and specialization of its environmental program, particularly in its ability to partner with state agencies and universities to maximizing the post's natural resources.

Cultural Resources Management

● **Winning installation: Fort McCoy, WI**

Fort McCoy, Wisconsin, received the Secretary of the Army 1998 Environmental Award for Cultural Resources Management for the management of its historic properties and archeological sites on 60,000 acres of land, and for the development of innovative technologies which have established the post as a model for the entire Army.

● **Winning Individual: Dr. Laurie J. Lucking, U.S. Army Garrison, HI**

Dr. Laurie J. Lucking received the Secretary of the Army 1998 Environmental Award for Cultural Resources Management, Individual, for her direct contribution to military readiness and establishment of community relationships while managing cultural resources on two major installations and 25 sub-installations, a total of 150,000 acres on two islands.

Environmental Quality

● **Winning non-industrial installation: Fort Bliss, TX**

Fort Bliss, Texas received the Secretary of the Army 1998 Environmental Award for Environmental Quality, Non-Industrial Installation, for its innovative techniques in overseeing one of the Army's largest military training areas located in a sensitive environmental ecosystem.

● **Winning industrial installation: Radford Army Ammunition Plant, VA**

Radford Army Ammunition Plant, Virginia, received the Secretary of the Army 1998 Environmental Award for Environmental Quality, Industrial Installation, for balancing its industrial needs as the Army's largest active ammunition plant with critical ecosystem practices which protect the critical watershed area in which the plant lies.

● **Winning individual: Colonel Frank Intini, Army Aviation Support Facility #1, New York Army National Guard, Ronkonkoma, NY**

Colonel Frank Intini, Army Aviation Support Facility #1, New York Army

National Guard, received the Secretary of the Army 1998 Environmental Award for Environmental Quality, Individual, for his leadership in enhancing military readiness and aviator qualifications through innovative environmental programs.

Pollution Prevention

● **Winning non-industrial installation: Aberdeen Proving Ground, MD**

Aberdeen Proving Ground, Maryland received the Secretary of the Army 1998 Environmental Award for Pollution Prevention, Non-Industrial Installation, for an extensive, well-managed pollution prevention program that ranged from the creation of a "Hazmart" for distributing and controlling hazardous materials to replacing more than 30,000 light fixtures with more efficient ones.

● **Winning industrial installation: Tobyhanna Army Depot, PA**

Tobyhanna Army Depot, Pennsylvania, received the Secretary of the Army 1998 Environmental Award for Pollution Prevention, Industrial Installation, for the many steps it is taking to reduce and prevent pollution from its communication electronics manufacturing and overhaul activities.

● **Winning individual: Dr. Christine Gettys Hull, Fort Polk, LA**

Dr. Christine Gettys Hull, hazardous waste and material manager for the Joint Readiness Training Center (JRTC) and Fort Polk, Louisiana, received the Secretary of the Army 1998 Environmental Award for Pollution Prevention, Individual, for her creative and comprehensive approach to pollution prevention and the commercial transferability of many of the programs she initiated.

● **Winning Weapons System Acquisition Team: U.S. Army Aviation and Missile Command, Redstone Arsenal, AL**

The U.S. Army Aviation and Missile Command Environmental Technology Team, Redstone Army Arsenal, Alabama, received the Secretary of the Army 1998 Environmental Award for Pollu-

Army garners two DoD Awards

As the *Digest* went to print, the DoD Environmental Awards were announced. The Army had two major winners:

Natural Resources Conservation, Large Installation

Camp Ripley, Minnesota

Natural Resources Conservation, Small Installation

Fort Belvoir, Virginia **PWD**





America's Army —



"Sustaining the Land We Defend"

The U.S. Army Environmental Center guides the Army's efforts to enhance readiness and training and to improve quality of life through sound stewardship of the environment. The center integrates, coordinates and oversees the implementation of the Army's environmental program for the Army Staff. It also provides technical services and products to the Department of the Army, the Army's major commands,

and installation and unit commanders.

For more information on USAEC, please visit our Web site at <http://aec-www.apgea.army.mil:8080/>. Click on "What's hot on the USAEC Web site" to reach the Army Environmental Awards home page.

USAEC manages the Secretary of the Army Awards Program for the Office of the Secretary of the Army.

tion Prevention, Weapons Acquisition Team, for its efforts to reduce or eliminate the use of hazardous and ozone-depleting materials in the development, acquisition, fielding and sustainment of weapons used by the command.

Recycling

● Winning non-industrial installation: U.S. Army Training Center and Fort Jackson, SC

U.S. Army Training Center and Fort Jackson, South Carolina, received the Secretary of the Army 1998 Environmental Award for Recycling, Non-Industrial Installation for increasing productivity, recovery of recyclable materials and for its excellent community and installation outreach efforts.

● Winning industrial installation: Tobyhanna Army Depot, PA

Tobyhanna Army Depot, Pennsylvania, received the Secretary of the Army 1998 Environmental Award for Recycling, Industrial Installation, for recycling 12.8 million pounds of materials and reducing the waste stream disposed

of in landfills by 68 percent, saving over \$1 million dollars in disposal costs and generating over \$298 thousand in revenues from the sale of recyclables.

● Winning individual: Douglas A. Schonberner, Fort Riley, KS

Douglas A. Schonberner, chief of the recycling division at Fort Riley, Kansas, received the Secretary of the Army 1998 Environmental Award for Recycling, Individual, for leading his division to recycling over 7.1 million pounds of standard recyclables in 1998 — an amount almost 3 million pounds greater than the National Recycling Coalition's stated average for a community the size of Fort Riley.

Environmental Cleanup

● Winning installation: Twin Cities Army Ammunition Plant, MN

Twin Cities Army Ammunition Plant, Minnesota received the Secretary of the Army 1998 Environmental Award for Environmental Cleanup, Installation, for establishing relationships with neighboring communities and support-

ing strong input toward the goals of the post's Restoration Advisory Board, ultimately helping the ammunition plant reduce cleanup costs.

● Winning team: Fort Wainwright Environmental Cleanup Team: Crista A. Fosbrook, Joseph S. Malen, Therese M. Deardorff, Fort Wainwright, AK

Fort Wainwright, Alaska's, Environmental Cleanup Team received the Secretary of the Army 1998 Environmental Award for Environmental Cleanup, Team, by demonstrating that through safe, efficient, cost-effective land use policies the Army can train soldiers for our nation's defense without harming the environment.

Each Secretary of the Army award winner is nominated to the Secretary of Defense Environmental Security Awards competition. Environmental Security Award winners will be recognized April 27, 1999 during a Pentagon ceremony.

For more information, please contact: Cynthia Houston, USAEC Public Affairs, (410) 436-1269, e-mail: clhousto@aec.apgea.army.mil **PWD**



People who live and work on Fort Belvoir have known for years that natural resource conservation helps keep the post “Beautiful to see.”

Now the rest of the Army knows that, too, as Fort Belvoir has won the 1998 Secretary of the Army Environmental Award for Natural Resource Conservation — Small Installation Division.

The post will represent the Army in Department of Defense competition, with Army- and DoD-level awards to be presented April 26 and 27 as part of Earth Day observances.

“We’re pleased, really, really pleased,” said Dorothy Kleough, chief of Fort Belvoir’s Natural Resources Branch of the Directorate of Installation Support.

“It’s really nice for people to be aware of the work we do. It feels good, because it’s hard work, but now people know that we’re doing a great job.”

The award, announced by the Army Environmental Center at Aberdeen Proving Ground, Maryland, on December 29, recognizes and rewards environmental excellence within the Army.

“We’ve taken an ecosystem view of our habitat areas here,” Kleough said. “I think it’s a brilliant concept.”

The concept involves defining and designating a corridor of land through the post to connect the undeveloped Huntley Meadows park area north of Belvoir with Mason Neck Peninsula of Pohick Regional Park, Gunston Hall Plantation, Mason Neck State Park and the Mason Neck Wildlife Refuge to the south.

“We have a band defined that’s a minimum of 250 meters in width for wildlife, a natural habitat where we

Belvoir wins environmental award

by Candice Walters



Canadian geese find refuge for the winter on Fort Belvoir, thanks to the U.S. Army post's environmental efforts.

keep development out,” she said. It runs between Jackson Miles Abbot Refuge and Accotink Bay — a connected forested area that follows along the stream corridors on post.

“We’ve taken a regional view to our natural resources that many people don’t often take,” Kleough added.

“We’re working hard in our forested and wildlife areas to rehabilitate old, unused training areas within the corridor. We’re taking out roads and reforesting, taking advantage of our two-for-one tree replacement policy. Our goal is to keep a contiguous forested area throughout the corridor,” she said.

The corridor is just one facet of Fort Belvoir’s natural resource program. Other significant features include 11 miles of undeveloped shoreline along the Potomac River and Gunston Cove; three significant wetland areas of Ac-

cotink Bay, Dogue Creek and west of Woodlawn Village; a riparian forest buffer; wildlife/wetland refuges of the Accotink Bay Wildlife Refuge and the Jackson Miles Abbott Wetland Refuge; and approximately 365 archeological sites including the Belvoir Mansion Ruins and the Fairfax Family Gravesite.

Because Fort Belvoir is part of the Chesapeake Bay watershed area, “we realize that what we do affects the watershed,” Kleough said. “We’re doing a shoreline survey that plugs into regional programs.

“We’ve mapped our watershed area, identified potential problems and are taking steps to control pollutants, erosion and pesticides. We’re working with our subwatersheds to develop a strategy for revegetation and storm water management.

“We’re going beyond the minimum required by law as we’re systematically going through the subwatersheds to correct erosion

problems,” she added.

The natural resource specialists have also tried to reach out to the public to let them know about Fort Belvoir’s environmental program and that “our sensitive habitat areas are open to the public. We’ve led nature and bird walks and hosted classrooms,” she said.

One advantage Fort Belvoir’s natural resource program enjoys is a command commitment. “Our commanders have worked hard to integrate the principles of stewardship and environmental conservation in all ongoing operations on post,” Kleough said.

And that commitment has paid off with the Army’s environmental award.

PWD

Candice Walters is the Editor of the Belvoir Eagle.



Preston receives Environmental Engineer of the Year award

by Marnab L. Woken



MAJ Kurt Preston, Europe District's Technical Coordinator for Environmental Remediation, is pictured in Hungary.

As the principal Environmental Engineer for Operation Joint Endeavor, MAJ Kurt Preston has received the Federal Environmental Engineer of the Year award.

Preston, who is Europe District's Technical Coordinator for Environmental Remediation, is collocated with United States Army, Europe (USAREUR), Office of the Deputy Chief of Staff, Engineer (DCSENGR) in Heidelberg, where he is an assistant and advisor on the technical aspects of environmental issues throughout USAREUR. While often asked to comment on a multitude of environmental issues to include the environmental aspects of contingency operations, his primary focus is restoration — he validates all Army restoration projects in Europe for technical quality.

As a reservist with the 412th Engineer Command (ENCOM), Preston deployed to Hungary in support of Operation Joint Endeavor in May 1996 as the principal point of contact for environmental issues to deployed forces.

"As the largest military operation on the European Continent in 50 years, it was incumbent on United States military forces to display an exceptional regard for the environment," said Garry Zettersten, Chief of Environmental Division at Headquarters USAREUR DCSENGR. "As a result, environmental issues were critically important and

the operation possessed an enormous environmental focus."

"Major Preston provided a critical link between environmental stewardship and mission accomplishment while stationed in Taszar, Hungary," added Zettersten. "With extensive military and environmental experience, he provided the senior field commander an immediate, expert source for timely, relevant, and accurate environmental engineering information. Additionally, his leadership and executive ability provided the U.S. Army's environmental



MAJ Tim Touchette, former Europe District Planning and Environmental Project Manager, Per-Ivar Pedersen, a captain in the Norwegian Army, and MAJ Kurt Preston stand in front of a Norwegian base camp in November 1996 in support of Operation Joint Endeavor.

program unparalleled stability and direction throughout the four nation area of operations."

There are four constant components to the environmental program, according to Preston. They include hazardous waste disposal, environmental assessment of all sites, spill response, and spill site remediation."

"The biggest challenge was the ongoing coordination of the movement of hazardous waste and contaminated materials across international borders," said Preston. "A lot of people were involved in the issue and we met the challenge."

"From a Corps perspective, we were heavily involved in spill response, particularly in Hungary," he added. "What could have been major problems were stopped due to a quick response by the Corps."

"The environment is a major issue in Eastern European countries and people are now able to express their concerns," said Preston. "In the States, if you don't want a landfill in your backyard you go to the city council and voice your opinion. People in Eastern Europe were not able to do that until now."

"I can't think of anyone across the spectrum of support personnel who deserves this award more," said Zettersten. "At the same time, the award represents the efforts of a host of Corps of Engineers employees who support the total effort — Environmental Engineer Henry Becker, Ansbach Environmental Branch Chief Mary Schommer, Planning and Environmental Project Manager Johnny Martinez, Planning and Environmental Branch Chief Debra Dale, Project Manager Randy Holman, and MAJ Tim Touchette, former Planning and Environmental Project Manager.

"One thing that made issues much easier was the work of MAJ Tim Touchette," added Preston. "I feel great about the award. It's a great honor. It really is a form of recognition for all of the work the soldiers did downrange. It also represents the great work of the two organizations that deployed me — USAREUR DCSENGR and Europe District." **PWD**

Marnab L. Woken is a public affairs specialist in the Europe District Public Affairs Office.



Awards!

Aberdeen Proving Ground garners Maryland Cultural Resources Award

by Mike Cast

The Maryland Historical Trust recognized Aberdeen Proving Ground for its proactive cultural resources management program and public outreach during an awards ceremony November 6 at the State House in Annapolis. APG's program to protect and manage cultural resources on the 70,000-acre military installation earned it this year's Preservation Service Award.

Nine other historic projects submitted by organizations and individuals throughout the state earned awards for their efforts to preserve Maryland's heritage. The award-winning projects demonstrated "superlative standards," according to Rodney Little, director of the Maryland Historical Trust.

The Preservation Service Award is presented annually to individuals, institutions or agencies that promote historic preservation in Maryland, explained David Blick, APG's cultural resources manager. The proving ground was nominated for the award for its activities over the past couple of years, he added, and received it this year due largely to its program to inform the local public about historic sites at APG.

"We have had school groups come out and have done interpretive programs," said Blick, who earned a bachelor's degree in history from Wake Forest University and a master's degree in historic preservation from the University of South Carolina in 1995. "We put together educational materials as a result of an archeology project. One of the things we did was examine how the Native Americans lived in the upper Chesapeake Bay before the Europeans arrived."

Another major project of the cultural resources staff at APG has been to convert APG's plan for preserving cultural resources to an Integrated Cultural Resources Management Plan based on technical guidance from the U.S. Army Environmental Center, he said. It involves integrating the various aspects of cultural resource management at both the Aberdeen and Edgewood areas of the proving ground with the day-to-day Army mission. The intent is to ensure a well-managed program that complements the proving ground's natural



David Blick stands in front of the old headquarters building at Aberdeen Proving Ground. (Photo by Mike Cast)

resources management as well as testing and training activities, he said.

One of APG's leading projects is the historic survey of some 1,000 pre-1950s buildings on the post, and some 2,500 buildings and structures overall. Several buildings in the Aberdeen Area, such as the headquarters of the Ordnance Center and School, officers' housing, and the old post headquarters building, date back to the post-World War I period, World War II and the Cold War era.

College students have been involved since April 1997 in doing a survey of Cold War-era structures, Blick added. The students are working on degrees in history and architecture.

The buildings are being evaluated for their eligibility for the National Register of Historic Places. The National Park Service's criteria for National Register listing are that the property be associated with a historic trend or event, that it be associated with a historic person, that the property has significant architectural features or an unusual engineering design, or that it provide archeological information about the past.

"Plumb Point Housing [Aberdeen Area] and the Ordnance Center and

School are historic districts," Blick explained. "The lighthouse on Poole's Island is another historic structure. We've done a partial restoration and stabilization of the lighthouse.

We also have two Native American archeology sites at APG."

The installation also contains restored structures from the 18th century, such as the Gunpowder Meeting House, an old Methodist church near a back gate of the Edgewood Area of the post, and the Quiet Lodge, a restored residence that now serves as an office for Army Community Relief in the Edgewood Area.

Blick said APG's cultural resources staff has been working at an area called the Old Baltimore Site. Located along the Bush River in the Aberdeen Area of the post, it is a colonial-era site where artifacts from the late 1600s have been found.

"We found the site of the original tavern building from the late 1600s," he said. "It is the oldest excavated colonial site on the upper Chesapeake Bay. Through local lore and historical records, old land grants, we knew that something had been there. We were able to find the location of this historic site and came across artifacts such as metal, glass, ceramics and animal remains that indicate what people ate or what animals were in the area. We found a clay pipe with the maker's marks, a glass bottle with a family crest and coins from England — a Charles the Second farthing."

These items are now on display at the headquarters for the cultural resources staff, located next to the APG golf course at one of the entrance gates. The building is a Victorian-era house currently under renovation.

Blick said APG's program not only garnered this year's award but also helped the installation gain credibility with state regulatory officials.

"I think the award really says a lot about our relationship with them," he said. "We've worked well with them over the past few years."

POC is David Blick, (410) 278-6756. **PWD**

Mike Cast is the editor of the Environmental Update.

Good Ideas!

“You Spill, You Dig” Deployed soldiers benefit from Environmental Handbook

by Marnah L. Woken

U.S. Army, Europe (USAREUR) and the U.S. Army Corps of Engineers, Europe District have joined forces to create an environmental handbook, flashcard and video designed specifically for working in a deployed environment.

Entitled “You Spill, You Dig,” the materials focus on environmental protection and pollution prevention during a contingency operation. The handbook provides deployed soldiers everything they need to know on keeping the environment clean and safe.

“The handbook, video and flashcard are basic, common sense guides for use in transporting, handling, storing and disposing of hazardous materials and hazardous wastes in a deployed environment,” said Robert Flowers, Planning and Environmental Project Manager for Europe District. “They focus on the critical areas of soldier safety and environmental protection under potentially difficult conditions.”

Produced by U.S. Army, Europe and Europe District, the “You Spill, You Dig” handbook is an environmental “how to” reference guide for deployed soldiers.

The handbook is organized around the concepts of environmental protection and pollution prevention, and arranged in sequence from pre-deployment to redeployment. It provides information on pre-deployment planning, transportation, establishing and maintaining camp at a deployed location, breaking camp, redeployment, as well as spill and accident response.

The pollution prevention section of the handbook—color-coded in green—illustrates the proper way to store hazardous materials, how to prevent environmental accidents, how to setup and maintain maintenance areas, fuel points, and hazardous material storage areas.

The spill response section of the handbook—color-coded in red—provides information on how to use a spill kit, how to respond to a spill, reporting a spill, and how to dispose of hazardous wastes.

“In the event of an accident, the handbook provides easy to find and easy to use spill response information,” said Flowers. It’s intended to help the soldiers and their unit run a clean, safe and effective operation.”

“We did our best to keep the handbook from looking like the typical Army publication by using interesting color, language, graphic design and even font style,” said Flowers. “I think we’ve succeeded in producing

an informative and interesting guide that will be useful to the deployed soldier wherever he or she may be. A soldier doesn’t have to know everything in the handbook to be able to use it effectively to solve a specific problem.”

The flashcard was created to present the most important and useful concepts and information quickly and clearly, according to Flowers. It was also designed to fit into a soldier’s uniform pocket.

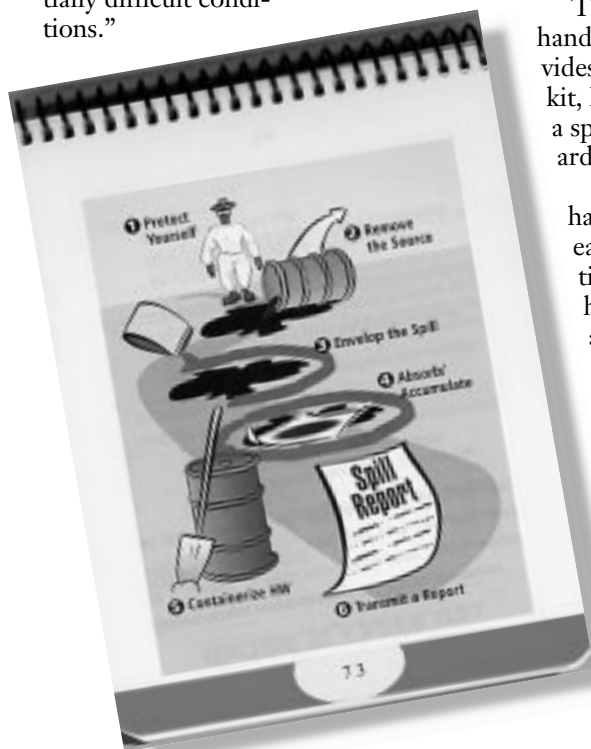
“The flashcard is a scaled-down version of the handbook and lists the basic housekeeping rules necessary to ensure hazardous materials are managed properly. It takes up less space than the handbook and is more likely to be carried by soldiers in the field.”

The 17-minute video has some of the same information as the handbook, stressing the importance of environmental protection.

“The video was intended to be used as an informational aid during meetings and other training opportunities,” said Flowers. “The video uses real examples of how to do the job correctly.”

“I really like the fact that deployed soldiers actually participated in the video,” said Dr. Kurt Preston, Europe District Technical Coordinator for Environmental Remediation. Preston is collocated with USAREUR’s Office of the Deputy Chief of Staff, Engineer (DCSENGR) and assisted with the project. “The video, handbook and flashcards are excellent tools for deployed soldiers,” he added.

Garry Zettersten, Chief of the Environmental Division at Headquarters USAREUR DCSENGR



In the event of an accident, the handbook provides easy to find and easy to use spill response information.



Thanks in part to President Clinton, Fort Belvoir's Mulligan Pond will be getting a facelift and a fresh stock of fish by spring, allowing handicapped individuals to fish from wheelchairs.

"We got an executive order from the president requesting the Department of Defense to enhance fisheries on military installations for public use and access," said Mike Hudson, Natural Resource specialist for Fort Belvoir's Directorate of Installation Support. "One of the big drivers is the handicap-accessible fishing pier, as well as the new trail."

Located in the Jackson Miles Abbott Wetland Refuge alongside Pole Road near the main entrance to Woodlawn Village, the pond will be dredged from 12- to 15-foot deep, and a path will be constructed to handicap-accessible fishing stations.

On Mulligan Pond

Handicapped can cast here this spring

by Tim Hipps

Fort Belvoir's Mulligan Pond will be equipped with handicap-accessible paths and fishing stations when its winter facelift is completed in April.

(Photo by Tim Hipps)

The pond's failed berm, which permits spillage into adjacent Dogue Creek, also will be repaired.

"It's basically the renovation of a freshwater fishery, the only one on Fort Belvoir," said Hudson, noting that the project should be completed by April. "We need to control the in-flow and the out-flow. That's the main part of the rehab of the pond — new water-control structures.

"Then we'll get with the Virginia Department of Game and Inland Fisheries to stock it with bass, brim and catfish. We'll put

The paths to the fishing stations will be paved, with gravel covering the remainder of the track around the man-made pond, created in 1964 by U.S. Army troops.

in whatever [amount of fish] the state recommends. It's a self-maintaining fishery." **PWD**

Tim Hipps is a staff writer for the Belvoir Eagle.

(continued from previous page)

was also involved with the project. "The video, handbook and flashcard are instructional aids and give soldiers the basic tools to protect themselves and the environment," said Zettersten.

"We've given the handbook to a number of Eastern European countries and Hungary is considering having the handbook translated for use in their country."

Zettersten added that some of the handbooks were distributed at the 1998 U.S. EUCOM Environmental Conference in Hungary which is conducted under the Partnership for Peace Program. The video was also shown at the conference, which provided a valuable critique of the materials.

SSG Giani Manieri, who was responsible for environmental protection at the troop unit level during his deployment to Bosnia commented, "The video will be extremely useful as part of the soldiers' orientation to base camp

life. The handbook and flashcards will be daily reinforcement, making my job much easier in the long run."

Bill Nicholls, Environmental Protection Specialist for USAREUR also played a major role in the project.

"We wanted to create nontechnical, soldier-friendly informational aids on the proper handling and management of hazardous materials," said Nicholls. "The handbook, flashcard and video accomplish that and also address the personal safety and health issue. They provide information on eliminating the possibility of adverse health effects to deployed soldiers."

"We've found that, given the right tools, information, and resources, today's soldier is very concerned about keeping the environment clean."

"I would like to compliment the Corps on the great work they did on this project," added Nicholls. "Especially the efforts of MAJ Tim Touchette, Robert Flowers, and the contractor Dames & Moore GmbH &

Co. They all went the extra mile to make this a successful project."

Nicholls also thanked Project Director Robert Cadow and Project Manager Tim Conley.

Flowers also stated the success of the project was in large part due to the efforts of MAJ Tim Touchette, former Europe District Planning and Environmental Project Manager.

Other Europe District employees who worked on the project include Debra Dale, Chief of Europe District's Planning and Environmental Branch, and Mary Schommer, Europe District Chief of the Ansbach Environmental Section.

Copies of the handbook were distributed to the 8th Engineer Battalion, the 1st Cavalry Division, and the Hohenfels Training Area for deployment training.

For more information on the environmental handbook, flashcard and video, contact Bill Nicholls at (49) 6221-57-9073 or DSN 370-9073. **PWD**



Excavator offers innovative solution to ordnance project challenge

by Kimberly Gillespie

Meeting the challenge of the unexpected can sometimes lead to new and better methods. The unexpected challenge for the U.S. Army Corps of Engineers' Huntsville Center was significantly more ordnance in an area at Jefferson Proving Ground (JPG), Indiana, a Base Realignment and Closure (BRAC) site, and it was resolved through innovation and team work. "By working together with the customer (the U.S. Army Test and Evaluation Command and the Corps' Louisville District), the contractor, and other Department of Defense ordnance experts, we were able to find the best available methods to address the problem," said Glenn Earhart, ordnance manager for the U.S. Army Engineering and Support Center, Huntsville, Alabama.

Huntsville Center, the Corps of Engineers' Center of Expertise and Design Center for Ordnance and Explosives, has been conducting an ordnance investigation and cleanup for JPG since 1996. During the fall of 1998, the contractor encountered a mortar field that was contaminated with a substantially larger amount of ordnance than was originally anticipated. The 43-acre area is now estimated to have over 20,000 60mm and 81mm mortars. "Our primary concern is, of course, safety, because of the density of contamination in this small area. But anytime you encounter a large amount of ordnance like this, you are also talking about significant cost and schedule increases," said Earhart.

Continuing with the original plan of using two dig teams and a demolition team was still an alternative, but two other methods were also considered. The Air Force offered the use of a remotely operated excavator (backhoe), while the Marine Corps offered the use



The controls for the remotely-operated excavator are located in a trailer approximately a quarter mile from the work.

of a remotely operated dozer developed by the Navy.

The remotely operated excavator was ultimately selected for use at the site. "The dozer rolled the soil into layers, while the excavator allowed the operator to loosen soil and reveal the ordnance without the additional sorting through soil mounds the dozer would have required," said Earhart.

When contacted, the Air Force offered the excavator at no cost to the Army, but the contractor's operators were required to attend training at Tyndall Air Force Base, Florida.

Each excavator operator works a 30-minute shift operating the controls. The controls consist of a joystick and a monitor to observe the excavator arm at work. These are located in a trailer approximately a quarter-mile from the work.

After the excavator reveals the mortars and they are identified, they are "vented," which means a "shaped charge" is placed on the mortars and detonated to ensure all explosive material is destroyed. The mortars can then be discarded as scrap.

Using the excavator, about 1,000 mortars per week have been cleared for a total of nearly 20,000 over 15 weeks. "If we had used a 24 person team clearing 800 mortars per week, it would have

taken 25 weeks to clear 20,000 mortars at a cost of approximately \$70,000 per week. Using the remotely operated excavator dropped the cost to about \$5,000 to \$6,000 per week," said Earhart.

Paul Cloud, the BRAC Environmental Coordinator for the U.S. Army Test and Evaluation Command, also praised the teamwork and results of the mortar field work. "Our mission is to ensure the restoration of the facility is performed in the best way possible. I feel like we got the safest and best technology available for our situation, and saving nearly \$65,000 a week is also a real bonus to the taxpayers."

Using the excavator was not Earhart's only innovation to the project. He also used a fixed-price contract to perform some of the other work at JPG. "But I'm extremely proud of the excavator because it was truly a team effort. We not only found a safe and cost effective way to perform the work, we also gained some valuable experience that can be applied to other projects and sites."

POC is Glen Earhart, Project Manager, Ordnance and Explosives Design Center, (256) 895-1577. **PWD**

Kimberly Gillespie is a public affairs specialist at Huntsville Center.



U.S. Army, Army Corps and DPW work together to save ducks

by Marie Darling



Army combat engineers and soldiers “plant” military explosives to open up muddy bottom of the Flats in preparation for placement of pumps.

In an effort to remediate widespread white phosphorus contamination at Eagle River Flats, a salt water marsh located on Fort Richardson, Alaska, the U.S. Army Corps of Engineers is working in a joint effort with the U.S. Army Alaska (USARAK), the Alaska National Guard and the Alaska DPW to implement a new and innovative remediation strategy.

The Eagle River Flats (ERF) covers an area of 2,165 acres and has been used as the primary ordnance impact area for Fort Richardson for approximately 50 years. In addition, this area is an important staging ground for waterfowl during spring and fall migrations. In the early 1980s an unusually high number of waterfowl carcasses were found. In-

vestigations conducted during a 6-year-period indicated up to several thousand waterfowl a year were dying of unknown causes. At that time, Bill Gosweiller, (now Chief) of the Environmental Resources of the Fort Richardson Department of Public Works, raised concerns that the flats may be contaminated. He initiated the investigative process and was ultimately responsible for the logistics and early field work performed at the Flats.

The conclusions from a 1989 study by a private contractor indicated that residues from munitions may be the cause for the waterfowl mortality. Because of Cold Regions Research and Engineering Laboratory's (CRREL) expertise in chemical analysis of munitions residues in soil and water and specifically

in Alaskan wetlands ecology, CRREL was asked by the Army to investigate what chemicals might be present in the ERF environment that could be accountable for the waterfowl mortality. Under the leadership of Dr. Charles Racine, a field team consisting of an ecologist, a chemical engineer, and a geologist collected and analyzed over 200 sediment samples from ponds where ducks were observed feeding and would subsequently die. Marianne Walsh, a chemical engineer, indicated that RDX, an explosive widely used by the Army, was initially suspect, but further investigations identified white phosphorus residues from smoke munitions as the cause of the waterfowl mortalities.

According to Mr. Charles Collins of CRREL, the ERF Scientific Coordina-





tor, "The saturated salt marsh sediments of ERF were contaminated by the incomplete burning of white phosphorus following detonation of smoke-producing munitions. Waterfowl feeding in the contaminated sediment then became poisoned by ingesting particles of white phosphorus." Mr. Collins further states that the ERF is the first Army training area identified with white phosphorus contamination. Prior to the findings at ERF, residue from white phosphorus munitions was thought to be nonpersistent in the environment.

In 1991, the Army stopped firing white phosphorus into ERF in an attempt to reduce waterfowl mortality; however, even today bits of dangerous phosphorus remain. To remediate areas of contamination, CRREL engineers have developed a unique, remote pumping system. Pumping is considered less invasive and brutal than the practice of dredging, a method that has been tried and was of limited success when considering the ecological effects.

To ready the work area, soldiers conducted field exercises using military explosives to create sumps for the pumps in the ponded areas of the Flats.

While placing a pump in a pond may seem a simple exercise, it took a lot of preparation, according to Major Michael Meeks in a 1997 interview. He further explained that before the pump could be installed, an area of the pond first had to be cleared of unexploded ordnance. Soldiers under his command then created the sump by preparing and detonating two 40-pound shape charges and two 40-pound cratering charges, thus opening up the muddy bottom of the Flats. Lieutenant Colonel Meeks, currently the Commander of DPW at Fort Wainwright, was commander of CRREL's field office in Fort Wainwright and developed the initial procedure for creating the sump for the first pump deployment.

In these prepared areas the helicopter crews and pathfinders placed 2,000 gallon per minute water pumps to divert the water to other parts of the Flats. Once the water is removed, the pond is allowed to dry, exposing the white phosphorus contaminated sediments to the air which will, in turn, cause the white phosphorus to dissipate. Michael Walsh, a mechanical engineer also with CRREL, in an interview with

the *Alaska Post* stated that, "This procedure was a way to drain the ponds without permanently changing the environment, and the habitat can be restored after the treatment." Conservative estimates by the engineers claim, after their initial pumping, that the effected area will recover within 3-5 years.

A recent CRREL Fact Sheet reported that results of the first-year study indicate a reduction of white phosphorus of more than 85 percent in the surface sediments. With the treatment strategy devised and implemented, the 5-year plan will continue with a joint effort of the civilian and military arms of the Army. Additional pumps will be deployed, increasing drainage of contaminated areas. Concurrently, annual assessment reports of the efficacy of the treatment program will be filed, with the possible treatment of additional areas and monitoring the overall situation at the Flats. According to Mr. Walsh, "Our expectations are that Eagle River Flats will be substantially decontaminated within the 5-year plan."

Not only are the waterfowl benefiting from this clean-up. Through this joint effort the soldiers partake in "real" training in the use of explosives while in collaboration with engineers to rid the marsh of the highly toxic substance. Soldiers and engineers in the field were assisted by Huey and Blackhawk helicopters and crew to transport personnel and equipment. The crew also assisted in placing the equipment, shape and cratering charges and helped with the placement of the large water pumps and generators to the remote areas of the marsh. All while working in a remote, hazardous area littered with unexploded artillery rounds.

For more information on this unique project, please contact Michael Walsh at (603) 646-4363 or e-mail: mwalsh@crrel.usace.army.mil (fax at 603-646-4720). The videotape on this remediation effort in Alaska (#T98013) is available by interlibrary loan from the CRREL Library at (603) 646-4779 or by email to erhoff@crrel.usace.army.mil. **PWD**

Marie Darling is a public affairs specialist in the Public Affairs Office at ERDC/CRREL.



Soldiers attach fuel tank to Blackhawk helicopter for airlift to the Flats where it will refuel pumps. (Photos by Michael Walsh)



Twin Cities AAP enters final phase of Cleanup Program

by Neal Snyder

The last chapter in a story of firsts began May 7 with a groundbreaking ceremony at the Twin Cities Army Ammunition Plant (TCAAP) north of Minneapolis and St. Paul, Minnesota.

The event celebrated the signing of the third and final Record of Decision (ROD), a cleanup agreement for the TCAAP installation restoration program that assigns roles and responsibilities to the many parties involved, from Alliant Techsystems, Inc., a defense contractor with a manufacturing plant on post, to the governments of the surrounding communities.

From the first use of the now-standard Federal Facility Agreement to the first Army-funded attempt to use native plant species to remove heavy metals from soil, the TCAAP cleanup has been a model for other large environmental projects by the Army, according to U.S. Army Environmental Center (USAEC) and TCAAP officials.

Work under the new ROD began last June and is expected to be mostly complete by 2002, according to a TCAAP news release. Work on a deep groundwater site is expected to continue for another 35 years.

Current estimates place the total cost of the cleanup at \$325 million, according to Pete Rissell, who oversees Army cleanup projects for USAEC's Restoration Oversight and Evaluation Branch.

Restoration of TCAAP has been one of the largest such projects for the Army and the state of Minnesota. It is the largest project in the state under the

Environmental Protection Agency's "Superfund" oversight and ranks 42nd among the roughly 1,200 projects on the EPA's National Priorities List.

Over the years, the project has made partners of USAEC, the EPA, Alliant, the Army Industrial Operations Command, the Army Corps of Engineers, the Army Center for Health Promotion and Preventive Medicine, the Fish and Wildlife Service, the Minnesota Pollution Control Agency, the Minnesota Department of Health, the Minnesota Department of Natural Resources, civilians on the project's Restoration Advisory Board, numerous contractors and local government officials.

TCAAP was built in 1941 on four square miles of farmland to supply munitions for World War II, and later the Korean and Southeast Asian conflicts. The plant gradually lost its importance as a manufacturing, testing and training site as suburban Minneapolis-St. Paul expanded from the south. Entirely surrounded by residential communities, TCAAP hosts Alliant and provides training grounds for more than 700 U.S. Army Reserve and Minnesota National Guard soldiers. The National Guard is scheduled to take control of a large portion of TCAAP this fiscal year, Rissell said.

TCAAP sits on the Hillside Sand and Prairie du Chien-Jordan aquifers, a major source of drinking water for the Twin Cities metropolitan area. The site contains about 1,700 acres of wetland on a Mississippi tributary and supports a number of wildlife species, including some that are threatened. Part of this is open to the public as a "Watchable Wildlife" area.

During TCAAP's first four decades, waste disposal,

pipeline leaks and production spills tainted area soil and groundwater, primarily with solvents used to clean the metal parts of ammunition. Other contaminants include heavy metals from the manufacture of rifle ammunition and parts for

artillery shells, polychlorinated biphenyls used in electrical transformers, and cooling oils.

These compounds seeped into the groundwater and gradually spread into a 12-square-mile area south and west of the Army post. The groundwater contamination was discovered between 1978 and 1982.

Its direct effect on the water supply of 33,000 residents and its potential for affecting the water of many more earned TCAAP its high position on the National Priorities List.

The TCAAP installation restoration program is based on the first Federal Facility Agreement (FFA) among the Army, EPA and the state, according to Marty McCleery, TCAAP remedial project manager. With some modifications, TCAAP's FFA served as a model for the documents guiding Army cooperation with EPA in every large-scale, on-post cleanup project.

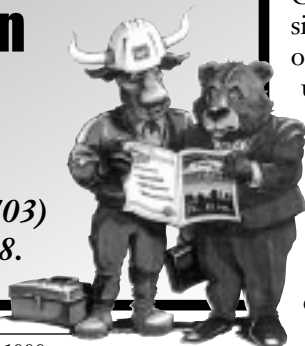
"We were the model in several cases of how to do things right, and in several cases of how to do things wrong," McCleery said. "It was the beginning of the regulator and the regulated working together to solve problems rather than pointing fingers at each other. We worked to get a long-term agreement at the site."

The two previous Records of Decision for cleanup at the ammunition plant covered the treatment of water in the aquifers south of the post. The required work is complete, and "no one is drinking contaminated water" in the neighboring communities, said McCleery.

The new ROD covers work to be done on TCAAP itself; both soil and groundwater treatment. Signing this ROD provides "final coordination of all groundwater remedies whether on or off post, and links them all together to ensure a consistent remedy," Rissell said.

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Alaska soldiers fire lead-free service rounds on range

by Bill Vagt



Alaska National Guard soldiers fire lead-free core standard service rounds at the Stewart River Training area.

The Alaska Army National Guard became the first military unit to fire lead-free core standard service rounds when it opened its Stewart River training area, near Nome, last August.

The copper-jacketed 5.56 mm M-16 bullets, developed by the Army's Armament Research, Development and Engineering Center at Picatinny Arsenal, New Jersey, use a core made of a tungsten-tin mix, instead of lead. They are ballistically identical and as safe to fire as the standard lead-core rounds. Tests have shown this projectile to be slightly more accurate than standard lead-core ammunition.

"There was no difference in the performance of the rounds concerning shot groups, or functioning of the weapon,"

said MAJ Gary Curtiss, operations officer for the 1st Battalion Scout, 297th Infantry, after his unit fired 5,200 of the new bullets during its annual qualifying exercise.

"The percentage of soldiers who qualified using this type of ammunition remained the same as previous qualifications," Curtiss said.

According to the U.S. Army Environmental Center, which oversees the lead-free, green core portion of the small-caliber ammunition program, tungsten-based bullets are expected to reduce environmental compliance costs at small-arms ranges and help cut the expense of removing heavy metals from the soil.

The bullets will undergo final tests and could be available Army-wide in 1999.

"Our goal is to have lead-free service ammunition for the Army and the other services within the Department of Defense as we move into the 21st century," said Dave McFerren, program manager for lead-free ammunition at USAEC. Developing "green ammo," as the lead-free core project has come to be known, is one of the many USAEC initiatives under Range XXI, designed to help soldiers maintain a trained and ready state while implementing sound environmental practices. **PWD**

Bill Vagt is with the Alaska Army National Guard.

(USAEC Public Affairs staff contributed to this article.)

(continued from previous page)

The new agreement also marks the beginning of soil cleanup on post. The Army Corps of Engineers is using a "corrective action management unit," in which soil removed from contaminated sites is processed and stabilized in a central location on post before it is hauled to a certified landfill, Rissell said. Other tainted soil will be used to demonstrate phytoremediation, a process in which plants absorb contaminants from the soil.

Alliant took responsibility for a portion of the contamination and pitched in on the restoration, both on and off post, McCleery said.

Along TCAAP's boundary, for example, Alliant helped design and construct a 12-well containment system for contaminated groundwater. Alliant and the Army share the costs of operating and maintaining the system.

Alliant also paid for the construction and operation of a groundwater pump-and-treat system built in the city of New Brighton, southwest of TCAAP. A second system was built by the Army, which is also paying for its operation.

POC is Martin McCleery, (651) 633-2301, ext. 1651. **PWD**

Neal Snyder works in the USAEC Public Affairs Office at Aberdeen Proving Ground.

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Evaluation and selection of appropriate substitutes for ozone depleting substances

by Sandy Frye

In working towards achieving DOD's goal of eliminating ozone-depleting chemicals (ODCs) in facility equipment and inventories, personnel occasionally find themselves in a situation wherein they must make decisions regarding the selection and/or purchase of ODC substitute substances, especially for refrigeration, air conditioning and fire suppressant systems. Prior to making such a selection, it is important for personnel to be familiar with the federal regulations governing the use of certain chemicals as ODC substitutes.

EPA's Significant New Alternatives Policy (SNAP) Program was developed to implement Section 612 of the Clean Air Act (CAA) regarding the acceptability of substitutes for ODCs. Under the SNAP Program, EPA identifies and lists those ODC substitutes that are legally allowable for particular ODCs used in specific applications. The SNAP Program is codified in Subpart G to 40 CFR Part 82 and contains a list of both acceptable and unacceptable substitutes. (It is important to keep in mind the system in which the substitute is to be used. Use of a substitute chemical may be allowable for one type of usage, but not in another.) Vendors of ODC substitutes are not necessarily the most reliable source to depend upon when making ODC purchasing and use decisions. An example follows of why personnel should always perform their own independent research prior to purchasing or using ODC substitutes.

Last year, DOD personnel at a Corps of Engineers facility were considering the use of an ODC substitute called Duracool for HFC-134A and CFC-12 in their vehicle air conditioning (AC) systems. The vendor assured them the substance would perform well in their vehicle AC systems, and, as it is neither a Class I nor Class II ODC, it would help meet DOD's goal to eliminate the use of these substances. Re-

search into the use of Duracool as a legal substitute for HFC-134A or CFC-12 in vehicle AC systems revealed that the substance was not all the vendor indicated it to be.

Duracool was found not to be a legal replacement for CFC-12 in automobile air conditioners. The main reason EPA has not condoned its use is a safety issue. Duracool is a hydrocarbon blend and is flammable. Its safe use in any system not designed to use flammable refrigerants has not been demonstrated as of yet. Another key point in using Duracool as a replacement for any refrigerant (e.g., HFC-134A) is that, because it is a hydrocarbon, it is regulated under other Titles of the CAA. Its use is prohibited in the following 18 states in automobile air conditioners:

Arkansas, Arizona, Connecticut, Florida, Idaho, Indiana, Iowa, Kansas, Louisiana, Maryland, North Dakota, Oklahoma, Texas, Utah, Virginia, Washington, Wisconsin, and Washington D.C. Although Duracool's use as a replacement for HFC-134A is not regulated, EPA's view on replacement of HFC-134A with Duracool can be found in a Fact Sheet on the subject (which can be accessed on EPA's Stratospheric Ozone Protection Information website given below). EPA states, "Cars and trucks built after 1994 are designed to use HFC-134A, and there is no reason to retrofit a new vehicle that contains HFC-134A. According to the auto manufacturers, changing the refrigerant will void the warranty and may damage the system."

Below are a few key points personnel should keep in mind whenever considering purchasing or using an alternative refrigerant:

- There is no such thing as a "drop in" replacement with no retrofitting. EPA requires that each new refrigerant must be used with a unique set of fittings. These are fittings on the vehicle, all recovery and recycling equipment, car taps and other charging equipment, and all refrigerant containers.
- Be aware of dealers performing "sham retrofits." They are illegal. An example of one such sham retrofit for which EPA is currently prosecuting occurs when a service agent takes a car with CFC-12 refrigerant in it, removes the CFC-12, recharges the AC unit with 134A, then immediately removes the 134A and charges Duracool into the system. The claim is that the Duracool was used as a substitute for the 134A and not the CFC-12, which would be illegal. If a vehicle goes into a shop with R-12 refrigerant, and comes out with Duracool, it more than likely underwent a sham retrofit.
- Always check with EPA as to the legality of the alternate refrigerant you wish to use. An excellent source of information is the Stratospheric Ozone Information Hotline at 800-296-1996 or check out their website at <http://www.epa.gov/ozone>.

POC is Sandy Frye, (402) 697-2635. **PWD**

Sandy Frye is an Environmental Regulatory Specialist with the U.S. Army Corps of Engineers Hazardous, Toxic, and Radioactive Waste Center of Expertise in Omaha, Nebraska.





Beware magnetic water treatment!

by Nelson Labbé

Do magnetic water treatment devices prevent scale, reduce operating costs and eliminate the use of treatment chemicals in all types of water systems? To date, after nearly 100 years, the technology remains unproven. Nonetheless, the devices remain heavily marketed by a number of companies.

Manufacturers and salesmen of these devices rely heavily upon testimonials from industrial customers to show that their devices work. However, it is often

easy to manipulate system parameters unknown to system operators to make it appear that these devices work. Independent controlled scientific studies are far from unanimous that these devices do anything beneficial. The Army completed its own study in 1984 and could not verify any positive effects from magnetic treatment devices.

In six states, law enforcement/consumer protection agencies have periodically issued consumer alerts to caution consumers about the effectiveness of magnetic water treatment devices. Some state courts have issued injunctions against specific companies and their agents for exaggerating product performance.

The Department of Energy has published a report (Jan 98) that seems to promote the use of magnetic water treatment devices. Unfortunately, the report can be misleading. The report begins by assuming that the devices work, does not present new data to support claims, uses fictional data to calculate cost savings, references cited do not support statements made in the report and the report seems to mostly echo promotional literature from manufacturers of the devices.

The National Sanitation Foundation (NSF) is trying to clear the muddled waters by requesting that magnetic water treatment device manufacturers participate in developing standard scientific testing protocols for determining whether specific magnetic water treatment devices work. The NSF had tried this approach before (in 1995), but only 2 out of 31 manufacturers agreed to fully participate and the effort died.

In summary, magnetic water treatment devices remain unproven and DPW personnel should be extremely cautious if considering the purchase of these devices until there is good independent scientific data to show that they work.

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Nelson Labbé works on water treatment issues in CPW's Sanitary and Chemical Division of the Engineering Directorate.

At long last—quality assurance for cooling water!

by Nelson Labbé

Every year the Army experiences significant energy loss and failure of a number of cooling towers and condensers in air conditioning systems because of poor water treatment of the circulating water. With modern treatments, scaling is rapid and severe if chemical treatment is not properly controlled, leading to system shutdowns. The unscheduled downtime and the cost to repair or replace damaged systems put a strain on dwindling budgets and manpower resources.

Another major concern in cooling towers is that poor water treatment control allows biological growth that could transform the cooling tower into a breeding ground for algae and bacteria, including bacteria that can cause Pontiac Fever and Legionnaires' Disease.

How do you know if the in-house staff or contractor providing chemical treatment to your cooling systems is doing enough to protect your system from biological growth, expensive scale, fouling and corrosion? We have significant problems even where the contractor provides some oversight. In most cases, this contractor or chemical vendor quality assurance (QA) is not adequate, objective or complete. Proper QA can help DPWs conserve energy, water, treatment chemicals and minimize operation and maintenance costs. With a little objective QA oversight of your

contracted or in-house cooling water treatment program, many problems can be avoided. It has been difficult to verify that your contractor's treatment program is effective, until now.

A CEISC contract is now in place for installations to utilize which can provide this critically needed cooling water QA. Water samples from the various systems (cooling towers, chilled water, makeup water, etc.) can be collected and sent for a QA analysis and evaluation. The recommended frequency for sending samples is once for each system at the beginning and middle of each cooling season or monthly for large, critical systems. Small systems may need QA only once each season. For most cooling water samples the cost is about \$170 each.

To use the contract, DPWs can set up a delivery order on the existing CEISC Boiler/Cooling Water QA contract. For some installations this has already been done for you through funding by your MACOM (FORSCOM, TRADOC); hence, just send samples to initiate services. During August 1999 the contract will be transferred to Huntsville but work through the contract will continue. Please contact Cris Sawyer 703-806-5206 DSN 656 or Nelson Labbé 703-806-5202 for specific information on how to use the contract.

☛ POC is Nelson Labbé, (703) 806-5202 DSN 656, e-mail: nelson.c.labbe@usace.army.mil **PWD**



Operations and Maintenance (O&M) guidance for wells in pump and treat systems

by Stephen White

Many pump and treat systems shut down or are severely restricted in performance because either their extraction or injection well systems are not functioning properly. The process of trying to solve the problem is a very frustrating one for most facilities, because all contractors say they have a solution. After the contractor attempts a fix, there is an apparent improvement in system performance, usually followed by a rapid deterioration.

After several disappointments of this nature, the installation is naturally skeptical about any additional rehabilitation proposals and considering replacing the wells. Unfortunately, new wells will go through the same cycle unless a rigorous O&M plan is started from the first day the well is turned on.

O&M of the wells is the orphan child of pump and treat systems. There often is no O&M plan for the wells, or it is a contingency that is forgotten until the system shuts down. By then the rehabilitation required to resurrect the wells is a significant cost item. In addition to chemically treating the fouled wells, it is necessary to redevelop the wells thoroughly.

Most of the problems associated with the extraction wells are due to biofouling with some associated mineral precipitation. This is going to be even more of a problem for those systems that are removing dissolved organic species. The presence of these organics in the pumped water accelerates the growth of various bacteria. Many operators and designers will deny or minimize the possibility of fouling in their system, since they believe there is not enough dissolved iron present. The bacteria often include a full suite of iron-related bacteria (IRB), sulfate-reducing bacteria (SRB), slime forming bacteria and aerobic bacteria. They can all coexist in the same well and create microenvironments that leach out iron or any other required nutrient.

Another misunderstanding is that the bacteria are only in the well screen and the pump. Studies have shown that



significant populations of bacteria also exist in the filter pack and up to several feet out into the formation. Thus any method to rehabilitate the wells needs to penetrate into the formation to be effective.

A number of installations have contacted the US Army Corps of Engineers Hazardous Treatment RW Center of Expertise (HTRW-CX) after one or more attempts to solve the problem failed. The methods that were employed were either totally ineffective or else the biofouling came back more quickly than expected. There are many vendors and contractors out there who claim to have the answer to your problems. However, some of these contractors are inexperienced with HTRW sites and most are unaware of the un-

derlying microbiological causes of the problem. Some even propose methods that in the long run will cause more problems than they fix.

Injection wells and trenches can clog for a number of reasons in addition to bacterial fouling. Primarily these are due to treated water that is geochemically incompatible with the native ground water. This leads to the formation of chemical precipitates in the well that are forced out into the formation and clog the pores restricting flow into the aquifer.

The number of calls the HTRW-CX has received from installations in the last few years regarding problem wells has caused the HTRW-CX to develop a new Engineer Pamphlet on "Operations and Maintenance of Extraction/Injection Wells at HTRW Sites." (The Final Draft should be submitted in April 1999.) This pamphlet outlines the types of problems that can be expected in both extraction and injection wells and what types of preventive maintenance can help minimize down time. Specific methods and formulas are presented for chemical solutions to carry out O&M.

In addition, an outline of an O&M plan is presented to allow site coordinators to develop their own site specific plan. Many of these methods were developed for USACE as part of a series of Repair, Evaluation, Maintenance and Rehabilitation (REMR) grants through WES for biofouling problems in relief wells. This Engineer Pamphlet updates that experience and shows how to apply the methods to HTRW sites. These methods have been successfully applied to Superfund and DOD sites. Once completed, the document will be available on the HQUSACE Publications Web Page.

POC is Stephen White, (402) 697-2660, e-mail: Stephen.j.white@usace.army.mil **PWD**

Stephen White is a geologist/geochemist in the Geoenvironmental & Process Engineering Branch of the HTRW Center of Expertise.



New software for weighing environmental benefits and costs

by Lawrence Skaggs

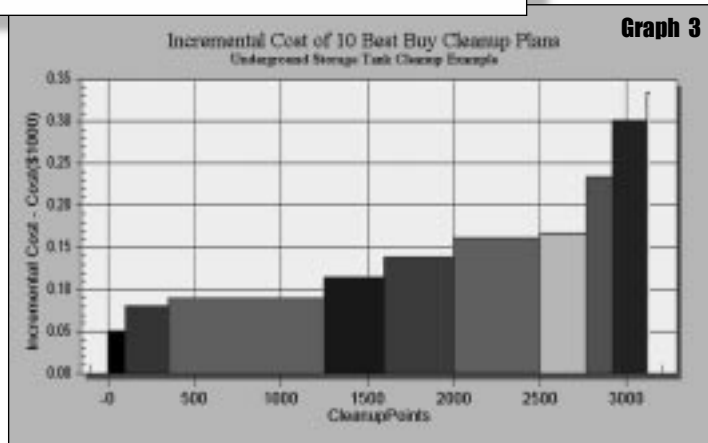
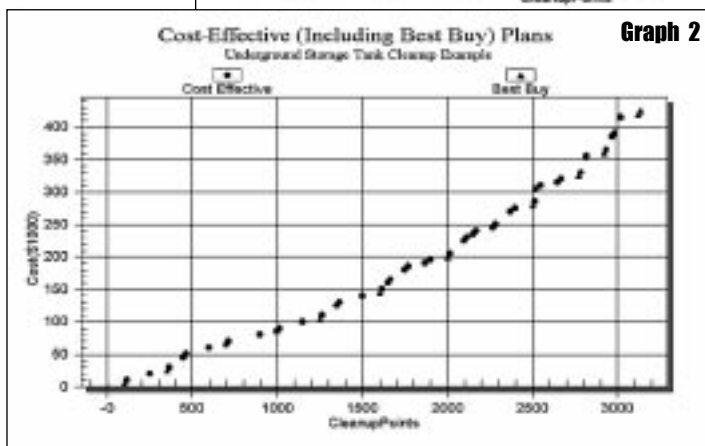
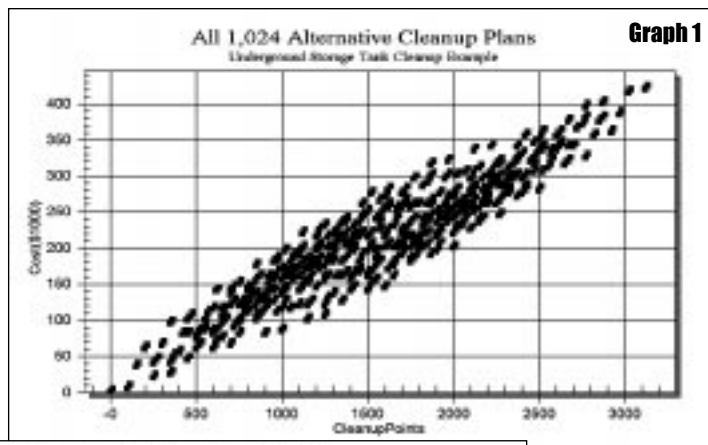
Wouldn't you like to make more informed decisions when considering whether additional environmental benefits are worth the additional costs on a particular project? Well, now you can, because the US Army Corps of Engineers Institute for Water Resources (IWR) has developed procedures for conducting cost-effectiveness and incremental cost analyses in environmental planning studies. IWR has incorporated these procedures into a software program called IWR-PLAN. With it, you can form alternative plans, identifying which ones are cost-effective, and conduct incremental cost analyses.

The application of IWR-PLAN is becoming widespread across the Corps' ecosystem restoration program. Recent uses of the software have included evaluating restoration alternatives in the Everglades, formulating habitat restoration plans for the Salt River in Phoenix, Arizona, and prioritizing acid mine drainage cleanup sites in West Virginia. The use of instructional manuals and the IWR-PLAN software has greatly improved the ease and speed of the analyses for field practitioners.

Recent Corps experiences indicate that IWR-PLAN analyses can be applied to both environmental restoration and mitigation planning. They can be used to scope solutions even at the earliest stages of planning. In addition, although the analyses have so far focused on fish and wildlife habitat and ecosystem-related studies, they can be equally useful in addressing other environmental problems such as water and air pollution and hazardous waste. Other agencies have indicated the potential applicability of the procedures to a wide range of problem solving scenarios, including the ordering of Superfund cleanup sites and transportation alternatives analysis.

Interested? Here's how IWR-PLAN works. To use the software, you need a list of solutions. The term solutions refers to techniques for accomplishing planning objectives. Solutions may be management measures such as clearing a channel, planting vegetation, installing nesting boxes, removing a leaking storage tank, plans or programs. For each solution, you need an estimate of its environmental effects (output estimates), and an estimate of its economic effects (cost estimate).

Then you enter two types of relationships between solutions: combinability and dependency (which measures can be combined with one another and which are dependent on others).



IWR-PLAN does the rest by providing:

- Formulations of combinations.
- A cost-effectiveness analysis of combinations.
- An incremental cost analysis of cost-effective combinations.

Once every possible combination of solutions is derived, IWR-PLAN will calculate a total cost and total output estimate for each combination. The program then conducts a cost-effectiveness analysis. When the cost-effective set of combinations is identified, the program calculates the incremental cost and incremental output of moving from one combination to the next larger combination.



IWR-PLAN also identifies the "best buys" as the scale increases from the smallest to the largest combination.

As output, IWR-PLAN provides the option to view or print matrices and their corresponding graphs for the following data sets:

- All plan combinations.
- Cost-effective combinations.
- "Best buys" with incremental cost per unit.

Graphs for the first two data sets plot the total cost against total output for each combination. For the last data set, IWR-PLAN plots the incremental cost per unit against the output in a bar graph format.

Graphs 1, 2 and 3 on page 17 come from an application of the IWR-PLAN software to a leaking underground storage tank cleanup. They show the total cost and total output of all alternative solutions for tank cleanup within the study area, the total cost and total output of the subset of alternative solutions which are cost-effective, and a bar chart of the incremental cost associated with the "best buys."

The "best buys" are the most efficient solutions for cleaning up the leaking tanks. The height of each bar shows the unit cost of achieving the associated additional cleanup benefits. As benefits are increased, the additional units come at a higher unit cost.

IWR-PLAN is a decision **support** tool that eliminates non-cost-effective plans and tells you which plans are superior financial investments (lowest cost per output). What you end up with is a series of plans (the cost-effective curve and the best buys). No one plan is "selected" for you. You have to keep asking the "Is it worth it?" question as you move up the curve. So if you need to know how much environmental benefit is worth the cost, IWR-PLAN can help. Please contact Lawrence Skaggs for more information, (703) 428-9091 DSN 328, e-mail: lawrence.l.skaggs@usace.army.mil **PWD**

Lawrence Skaggs is a Geographer in the Technical Analysis and Research Division of the US Army Corps of Engineers Institute for Water Resources in Alexandria, VA.

Tri-service standards— new releases

by Rik Wiant

Version 1.8 of the Tri-Service Spatial Data Standards (TSSDS) has been released. The new standard for Army Geographic Information Systems (GIS) is now being mailed on CD-ROM to Army installations. It is also available for immediate download from the Center's website (<http://tsc.wes.army.mil>).

One of the big, time-saving features of the new release is the introduction of specialized "filters," which select the appropriate entities for certain "specialized" GIS, such as "environmental compliance" or "range and training land." Since the standards continue to expand as the number of disciplines expand (and as we provide and increase the amount of attribute information for subjects already covered), it becomes more daunting to locate the entity descriptions that you want to use in your GIS. The filters make this easy. (We are looking at adding a filter for the Summary Development Plan in the next release).

The standards also include a module that makes it easier to upgrade from the last two previous versions of the standard. Changes like this are old news to IFS managers — the TSSDS now incorporate something like the IFS system change packages.

The new version includes new environmental facility management (FM) tables that were added for asbestos containing material (ACM), hazardous materials, hazardous waste, regulated storage tanks, environmental management, air quality, indoor air quality, lead based paint, environmental field measurements, surface water discharges, environmental remediation, polychlorinated biphenyls (PCBs), and toxic substances.

Since we are increasingly sharing data between GIS applications, and looking toward eventual Army wide use of some GIS theme data, it's very important that installation

GIS managers implement the new standards as soon as possible.

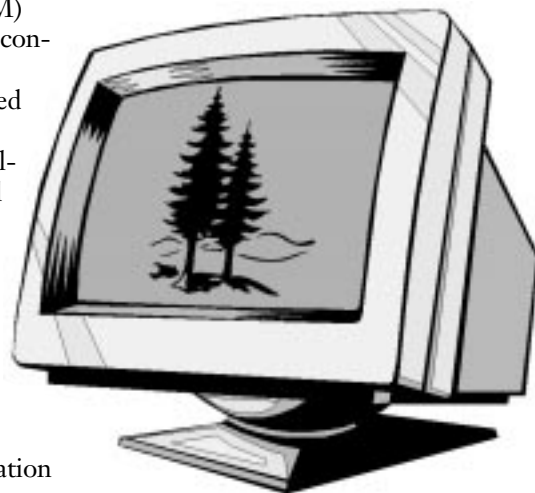
The same CD-ROM will also include the first distributed version of the Tri-Service Facility Management Standards (TSFMS). The TSFMS are intended to serve as a bridge between the drawing intensive CADD standards and the database-operated GIS standards. This is a new area, even for many installations with developed GIS.

The TSFMS consist of attribute tables containing "business" facility management, or "event" type information (e.g., construction, operation, maintenance, repair, and inspection type records) concerning the "real-world" features/objects depicted in the TSSDS and A/E/C CADD Standards. Their intent is to provide the capability to link to, and share data with, "corporate" databases, computerized information management systems, and commercially available FM systems.

For additional information about

Army use of the standards, please contact Rik Wiant at (703) 428-6086 DSN 328 or Fredrik.W.Wiant@usace.army.mil **PWD**

Rik Wiant works in the Planning and Real Property Division of ISC's Facilities Management Directorate.





Installations cutting costs and waste with hazardous substance management system

by Mike Cast

The Army increasingly seeks to prevent pollution by reducing its use of hazardous materials and reducing waste generation. To support that goal, the U.S. Army environmental Center (USAEC) and other Army organizations are working to help installations develop and implement the Hazardous Substance Management System (HSMS).

The Army began fielding HSMS to selected installations in fiscal 1996, and since then 25 installations have reached an "initial operational capability." Each installation is expected to expand its use of HSMS "fence-to-fence," or to a full operational capability, as it further develops the program to meet its specific needs. Another 25 Army installations are reaching the initial capability with HSMS.

"There are two major components of the HSMS program," explained Stan Childs, USAEC's team leader for HSMS. One is the Centralized Hazardous Materials Management Program, which he described as a process used to help Army installations evaluate, select and implement improved business practices, to better meet their hazardous-materials/waste management needs. The other is the HSMS software, which includes an Oracle database system for tracking hazardous materials and waste throughout their life cycle, from procurement through either consumption or disposal. This is referred to by many who manage hazardous materials or hazardous waste as "cradle to grave" management. The intent of both the management program and the software is to help installations procure hazardous materials in only the quantities needed, track their use and reduce wastes.

"The HSMS software, in and of itself, will not make installations better managers of hazardous material, reduce hazardous-waste disposal costs or save money," Childs said. "That is what the business-practice part of the program is designed to do."

Better Business

Management decisions are critical in light of how much money the Army spends to dispose of hazardous waste, a

cost that diverts resources from the Army's mission-oriented training, equipment and other military necessities. According to a briefing Childs gave the U.S. Army in Korea, the U.S. Army attributes approximately 50 percent of its hazardous-waste disposal to over-procurement of hazardous materials, the resulting misuse of these materials or the expiration of their shelf life. The Army Environmental Center manages the implementation of HSMS at the installation level, and the Army's Assistant Chief of Staff for Installation Management and the Deputy Chief of Staff for Logistics are preparing policy and guidance. The Program Executive Office, Standard Army Management Information Systems, is assisting with the technical aspects of the program, and the Army Corps of Engineers is providing contractors with the expertise to implement the improved business practices at Army installations.

USAEC provides funding for implementing the HSMS program to an initial operational capability. This includes funding for a contractor to assist in developing a "concept of operations," an implementation plan and execution of the plan. The Center also pays for the hardware and software needed to support the initial operational capability, as well as for initial user training and training for the installation's application database manager. Installations bear the costs of facilities that support the HSMS program, manpower, and equipment such as can crushers or forklifts. Installations also pay for expanding the program from initial operational capability to full operational capability and any other costs associated with sustainment.

"Despite the initial costs of setting up the program, there are proven cost advantages in the long run," Childs said.

Major Savings

The management of hazardous materials at Fort Campbell, Kentucky, for example, has been cited as a great success. Campbell has used a Hazardous Materials Control Center (HMCC) to significantly cut the generation of hazardous waste, thus avoiding the significant costs associated with waste

disposal. With the aid of automation and improved business practices, the installation staff reduced disposal of hazardous waste from 736,000 pounds in 1992 to just under 78,000 pounds in 1998, resulting in a savings of about \$831,000 in hazardous-waste disposal costs. During fiscal 1997, the Fort Campbell HMCC managed more than \$438,000 in excess stock collected from units and extended the shelf life of more than 4,400 items, saving about \$44,000 in disposal costs. In fiscal 1998, Fort Campbell was able to achieve a cost avoidance of almost \$1.6 million because of the HMCC and the implementation of other improved, environmentally-related business practices.

Fort Carson, Colorado, which established its HMCC in fiscal 1998 with the Directorate of Logistics (DOL) and the 3rd Armored Cavalry Regiment (ACR), recovered some \$362,545 in hazardous materials from just these two organizations. The excess material stocks were reissued free, resulting in a cost avoidance of nearly \$24,000 for the DOL and nearly \$107,000 for the 3rd ACR in just two months.

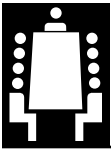
Fort Carson's HMCC also maintains a comprehensive shelf-life management program that saved more than \$293,000.

Support

The Army Environmental Center's HSMS support network includes a Web site with information, a schedule of classes and important program documents.

The Center also publishes an HSMS newsletter and hosts an HSMS course each quarter at selected Army installations.

POC is Stanley Childs, Pollution Prevention and Environmental Technology Division, (410) 436-1215. **PWD**



The following article appeared in *The Washington Post* on March 19, 1999.

1 million carbon monoxide alarms recalled

by Caroline E. Mayer

In the first action of a broad investigation of carbon monoxide alarms, the Consumer Product Safety Commission will announce today a voluntary recall of 1 million of the popular household devices because they go off too late—or not at all.

The CPSC probe was hastened by findings in recent studies that a surprisingly large number of faulty alarms are being sold to consumers.

The recall affects two brands made by Kidde Safety Co., the nation's largest manufacturer of carbon monoxide alarms. A total of 350,000 Lifesaver alarms are being recalled because most failed to go off, according to CPSC officials. In addition, 650,000 Nighthawk alarms are being recalled because the alarm often goes off late, after levels of the gas exceed acceptable limits. Exposure to high levels of carbon monoxide can result in death.

In recent years, especially after the 1994 death of tennis star Vitas Gerulaitis as the result of a faulty propane heater, a growing number of government agencies have been urging consumers to install devices to detect carbon monoxide, a colorless, odorless gas produced by the incomplete burning of fuel, which can be released by such things as leaking furnaces and gas stoves. Carbon monoxide in the home also comes from using charcoal indoors or from running a car in an attached closed garage.

The gas can easily overwhelm victims without their knowing it, with initial symptoms including headache, fatigue, shortness of breath, nausea and dizziness.

In May 1997, for instance, a family of five were found dead in their Silver Spring house after it filled with carbon monoxide from a car that had been left running in the attached garage. The bodies were found lying around the house; family members succumbed while doing everyday tasks such as shaving or taking a shower.

The CPSC became increasingly concerned about the reliability of carbon monoxide detectors after a study was released last month by the Gas Research Institute, a private laboratory funded by the natural gas industry.

The study found that 12 out of 80 carbon monoxide detectors (15 percent) were defective at the time they were purchased.

"We are doing a broad-based investigation to make sure there are no other defects with other alarms," CPSC spokeswoman Kathleen Begala said. If there are, there will be more recalls, Begala said.

But Begala added: "We still believe you're better off having a carbon monoxide detector than not having one, so we want to make sure it works as it should." Indeed, an increasing number of localities are considering requiring their installation.

An average of 560 deaths occur annually from carbon monoxide poisoning; at least 11,000 people a year seek treatment in hospital emergency rooms for carbon monoxide poisoning. About 40 percent of the deaths stem from fuel-burning appliances, while the rest are from car fumes.

CPSC and Kidde officials said they do not know of any injuries or deaths involving the products being recalled. While the recall of the Nighthawks stemmed from the GRI study, the recall of the Lifesaver alarms grew out of an investigation completed last month by Southern California Gas Co., which was reviewing alarms to see which ones they should recommend to their customers. After testing the alarms, "the company came to the conclusion that Lifesavers would not alarm," said Richard Stern, a CPSC compliance officer.

Kidde officials said the alarms had been tested and worked properly when

they left the factory but problems occurred during shipment, when the alarms were wrapped in airtight packaging that did not permit any chemicals to escape.

Thus, any gas from the solvents, glue, ink and other materials used in the packaging caused the sensor to lose its sensitivity.

Kidde said it will replace the sensors and add a charcoal filter to the alarms to eliminate future problems. Kidde said it will pay all the costs involved, including postage for sending the alarm back to the company.

"We will take care of the problem and get it back on track to where it should be," said Kidde President Mike Apperson.

Apperson said he had no idea how much the recall would cost the company, a subsidiary of Britain's Williams PLC. The recall affects all of the company's Nighthawk alarms made between November 8, 1998, and March 9, 1999, and Lifesaver models made between June 1, 1997, and January 31, 1998. Carbon monoxide alarms account for about a third of Kidde's business, which also includes sales of fire extinguishers, fire and smoke alarms, and escape ladders. Apperson said the company does not disclose annual sales figures.

Steve J. Wiersma, GRI's program leader for health and safety, said he suspects the CPSC will find "problems beyond the [alarms] they're recalling." Based on his research, he said, "it's not just a packaging problem but a basic flaw in technology and design."

Kidde said consumers with Lifesaver or Nighthawk alarms should contact the company—1-888-543-3346 or <http://www.kidde.com> to see whether they have one of the recalled alarms. If so, Kidde will send a postage-paid envelope for consumers to return the alarm for inspection and repairs. **PWD**

Caroline E. Mayer is a Washington Post Staff Writer.



A greater percentage of environmental budgets are being allocated towards operating and maintaining existing remediation systems. Because of this, there is increasing concern among Department of Defense services and EPA that this money is being spent inefficiently. The U.S. Army Corps of Engineers (USACE) Hazardous, Toxic, and Radioactive Waste Center of Expertise (HTRW-CX) has undertaken an initiative to help USACE Districts better serve their customers by developing a process to evaluate existing long-term HTRW remediation systems. The Remediation System Evaluations (RSEs) are meant to achieve a number of goals, including:

- 1** Identifying ways to save money on operations and maintenance;
- 2** Shortening time to closure, through periodic optimization and consideration of new technologies;
- 3** Meeting the requirement of the National Contingency Plan (NCP) for periodic (at least every 5 years) reviews of the protectiveness and performance of the remedy;
- 4** Verifying that there are clear goals and realistic closure criteria for the project (which is strongly advocated by the Department of Defense); and
- 5** Assuring that Government-owned equipment is being properly maintained.

RSEs are meant to be low-cost, rapid assessments of available information and current conditions; not detailed engineering or technical studies. They are meant to be a positive action focusing on the future and not the past; certainly not a finger-pointing exercise. Original designers of the remediation systems typically had much less information available than the data provided by years of operation. The RSE steps consist of project document review, interviews, a site visit, O&M data analysis, and report generation. The RSEs



U.S. Army Corps of Engineers Remediation System Evaluation (RSE) Process

by Robert Saari

should be conducted quickly and at a reasonable cost (\$15,000 to \$25,000). Three local Corps Districts each recently completed an RSE, with HTRW-CX assistance. The District costs for the RSEs averaged less than \$20,000 each, with resulting suggestions potentially saving hundreds of thousands of dollars per year.

The HTRW-CX has recently completed several tools to aid the system evaluators when performing RSEs. These include checklists, an RSE instruction guide, and an example RSE report. The primary tools used to perform RSEs are checklists. The checklists are meant to be prompts for the system evaluators. The checklists remind the system evaluators of the data to collect, questions to ask, potential problems to look for, analyses to perform, and alternative technologies to consider. Four categories of checklists have been developed, including:

- A General Checklist which is applicable to every site.
- Five Subsurface Performance checklists (ground water extraction, soil vapor extraction, air sparging, bioventing, and landfill covers/liners).

- One Above-Ground System Performance checklist which evaluates the remediation system as a whole.
- Fifteen Component checklists used for evaluating the performance of various treatment processes (air stripping, metals precipitation, thermal oxidation, liquid and vapor phase carbon adsorption, solids handling, advanced oxidation technologies, chemical feed systems, instrumentation and control systems, filtration systems, oil-water separation systems, wells, pumps, blowers and conveyance systems).

The RSE Instruction Guide provides detailed guidance on how to go about performing an RSE. The example RSE report gives a suggested level of effort for the final deliverable to the Customer.

A Corps Intranet website location, www.environmental.usace.army.mil, has been established which provides the tools outlined above. Look for future tools including additional checklists (for example, product recovery) and a Sample Scope of Services should the RSE work be contracted out.

The HTRW-CX can provide installations and USACE Districts assistance with a variety of RSE components including: (1) participation on District RSE teams, (2) technical consultation during the RSE, (3) development of additional RSE guidance/tools, and (4) screening potential sites. Installations with potential RSE sites are encouraged to work with the local USACE military District to assure proper long-term remediation of these sites.

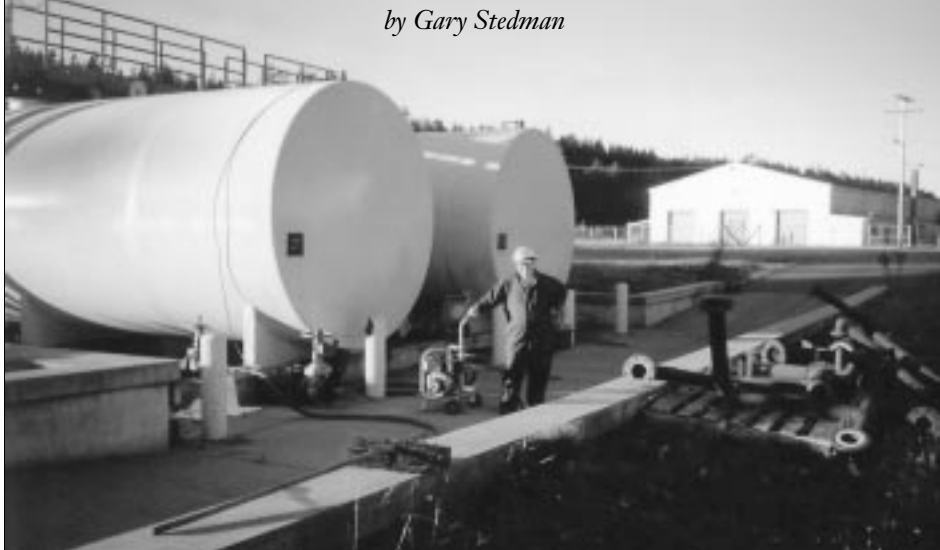
🔗 If you have any questions or require further information regarding the RSE process or HTRW-CX capabilities, please contact Robert Saari at (402) 697-2581, FAX (402) 697-2581, or email: robert.b.saari@usace.army.mil **PWD**

Robert Saari is an environmental engineer in the Geoenvironmental & Process Engineering Branch at the HTRW Center of Expertise.



Fort Lewis' unique Hazardous Waste Management Program

by Gary Stedman



James Lee, hazardous waste technician, inspects the bulk fuel storage tanks at Fort Lewis, where water-contaminated fuel is filtered and returned to units for use. (Photo by Dave Hodgeboom)

Under current Army regulatory guidance, the soldiers and units that generate hazardous waste (HW) are responsible for disposing of it. This approach creates a bureaucratic, multi-step HW disposal system, which often results in a high level of customer frustration and, sometimes, the illegal disposal (dumping) of hazardous substances. To insure compliance with HW laws and regulations, Fort Lewis has developed a unique HW management approach, which provides:

- A simplified disposal mechanism for the soldier,
- Tighter controls on the generation of HW,
- Increased education and command emphasis on the HW program.

The One Stop program was created as a pollution prevention initiative within the Environmental Services Section of Public Works Environmental and Natural Resources Division. The goal of One Stop is to reduce soldier requirements and increase environmental compliance. When asked about the One Stop Program, Ken Smith, Chief of the Environmental Services Section said, "We manage our resources to minimize our waste." This management

takes many forms including education.

The One Stop Environmental Services Office provides a centralized location to address all questions concerning environmental compliance and protection of Fort Lewis resources. One Stop provides environmental awareness training on a weekly basis to soldiers and civilians alike. Education is provided through outreach programs that include officer and non-commissioned officer professional development classes, and other specialized training.

"Our regulators really like our education and training programs," said Smith. "Education is the absolute key to resource recovery. Soldiers must learn to segregate, or materials become waste."

To facilitate the program, Unit Commanders and activity managers must assign both an Environmental Compliance Officer (ECO) and a Hazardous Waste Technician (HWT) within their organizations. The ECO and HWT then attend a two-phase environmental compliance training (8 hours) program provided by the One Stop Environmental Services Section. Upon completion of training, the One Stop section evaluates the unit or activity's processes, and then determines the waste streams that must be managed.

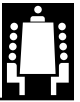
Accumulation of waste begins when the generating activity is issued a container (often a 55-gallon drum) from One Stop. A container will be matched by size and type, generation rate, and waste characteristics. The Hazardous Waste Tracking System (HWTS) uses a database format and bar code technology to fully track all waste containers from issue to ultimate disposal and destruction. The (HWTS) computer system is capable of tracking disposal costs by DODDAC or UIC, which makes HW disposal a reimbursable service for installation, tenant and transient units and activities.

Container pick up by One Stop can be initiated with a phone request from the generating activity or automatically scheduled by the HWTS. The One Stop technician completes a quality control check at the generating activity prior to loading the container, noting any discrepancies in a hand held scanner. The scanners are downloaded and corrections made in the One Stop Office. In FY 97, the One Stop Section handled over 3849 containers with over 1,906 different waste streams with less than one percent error in waste identification.

Waste disposal is accomplished through several avenues. The Defense Reutilization and Marketing Office (DRMO) handles 80 percent of our standard waste streams through an on-site interim storage facility (less than 90 days) at the Logistics Center. Our One Stop technicians pick up the waste from the generating activity and deliver it to the DRMO. The other 20 percent are managed through direct vendor pick up. We deal directly with disposal contractors when it serves the best interest of the facility (for example: lead acid battery, solvent, or antifreeze recycling).

Fort Lewis used to conduct semi-annual HW compliance inspections of the generating units and activities. This inspection process has given way to a new program called the Environmental Operating Certificate Program. The Environmental Services Section has begun preparing an Environmental Operating Certificate for each military unit and civilian organization having mission activities governed by one or more environmental regulations. The Certificate is an 'environmental permit' for the specific organization. In approving the program, the Garrison Commander di-





rected that implementation begin with military units.

The Certificate provides a *unit-specific*, "one-stop" environmental compliance packet of essential information, requirements, and guidance. The Certificate is jointly signed by the unit commander or civilian supervisor and the Chief, Environmental and Natural Resources Division, and reviewed annually for changers. The Certificate:

- Identifies and "certifies" unit activities that have environmental compliance requirements.
- Consolidates all "must do" compliance requirements, provides compliance checklists, and recommends best management practices.
- Provides an "Authorized Use List" of hazardous materials approved for the unit activities.
- Identifies the recurring hazardous waste streams generated from unit activities.

The primary purpose of the Certificate is to assist military and civilian organizations by consolidating essential environmental requirements and information. The program also benefits the installation by providing a unit benchmark when conducting environmental compliance inspections and assistance visits; reducing pollution prevention by ensuring that the least environmentally harmful hazardous materials are used in

unit activities; and standardizing the hazardous materials used in the processes across the installation.

Hazardous materials and waste management education and services are provided to all activities that transport, store or use hazardous materials. These services include but are not limited to technical assistance, waste reduction surveys, analytical sampling, waste identification, packaging, transport, and disposal, and state-of-the-art bar code tracking technology with PC based data collection and management.

The assistance provided goes beyond the gates of Fort Lewis. Our technicians have provided planning information to deploying units throughout the world. We currently have video training packages available on the National Training Center and points of contact at other installations that can help units maintain the highest state of compliance with other state or host nation environmental rules.

The focus of our programs begins with customer service and compliance, and then evolves toward pollution prevention and resource management. Some of our well-known services include used oil sales, fuel sales, antifreeze recycling, and household hazardous waste collection. Our newest fuel recovery program has resulted in virtual elimination of waste fuel disposal at Fort Lewis.

The One Stop technicians in the en-

vironmental compliance office also are tasked with the role of installation On-Scene Coordinator for all hazardous substance releases. "We average between 90 and 120 substance spills each year," noted Smith. "A spill is defined as any loss of hazardous substance to the environment."

This additional duty requires technical knowledge of all hazardous substances within the Fort Lewis boundaries. They must also respond to those unusual hazards associated with the I-5 corridor from the Nisqually Valley to Lakewood. This role requires the ability to address hazardous materials such as methamphetamine labs, train derailments, aircraft crashes, traffic accidents and boat sinkings or other water-related releases.

The One Stop Section is co-located with the Pollution Prevention (P2) Program Manager and staff which has allowed integration of pollution prevention initiatives. Recently One Stop and P2 cooperated in developing a contaminated waste fuel-recycling program. For years the management of contaminated fuel involved the collection of thousands of gallons of contaminated fuel in drums and sending the fuel off-post as a hazardous waste. Now the contaminated fuel is collected and stored on-post in bulk tanks. We pay industrial contractors for the technology service that recycles the fuel (removing water, the most common contaminant). The U.S. Army Petroleum Laboratory then analyzes the recovered fuel. If the fuel meets technical specifications, the fuel is then donated, free of charge, to units for use in tracked armored vehicle.

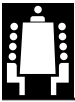
In 1997, 50,000 gallons of fuel were recycled and donated to units. Cindy Trout, P2 Program Manager commented, "The payback for this program is 1.17 years, and has an estimated net present worth of \$926,264, and this technology is transferable to any site. Fort Lewis is currently the only installation in DoD using this technology to recycle contaminated fuel."

If you would like any additional information about the One Stop Program, please contact Ken Smith, Environmental Services Section at (253) 967-4786. **PWD**

Gary Stedman is the Chief of the Natural Resources Branch at Fort Lewis.



Ralph Spears, hazardous material warehouseman, demonstrates the new Accutinter paint tinting machine to Jana Nelson of Public Works Environmental Compliance Services during the recent grand opening of the Hazardous Material Control Center at Fort Lewis. The machine is one of the many improvements at the center for the support of units and soldiers. The center will not only make the post more environmentally sound, but will also reduce environmental paperwork for units.
(Photo by SGT Gary L. Qualls)



Savannah District helps clean up FUDS sites

by Nancy Gould

The Department of Defense (DoD) is spending billions of dollars worldwide to clean up contamination left on formerly used defense sites (FUDS). With the award of a \$325 million TERC (Total Environment Restoration Contract) in 1996, Savannah District has become a major player in helping DoD clean up the sites in southeastern United States. Just recently, in a partnership with Jacksonville District, it took on a project to clean up contamination at a FUDS in Palm Beach County.

Between 1957 and 1963, Air Force Plant 74 operated a liquid hydrogen/oxygen production facility in Palm Beach County that supported early rocket development. In 1976, when United Technologies/Pratt & Whitney, a developer of aerospace propulsion systems, acquired the Palm Beach land as an addition to their existing facility, it was unaware of the contamination. It was also unaware that, as part of the land purchase, it was now held accountable by the Environmental Protection Agency (EPA) to clean up the site.

State and local regulators are also monitoring Pratt & Whitney's cleanup efforts and, along with EPA, will regulate the effort through to completion. Because DoD has earmarked funds for FUDS, the company has not shouldered that task alone.

The \$325 million TERC awarded to International Technology (IT) Corporation allocates \$2 million to clean up the Former Air Force Plant 74 by the end of 1999. The TERC is the first to be awarded by the South Atlantic Division and the second largest ever awarded by the Corps.

TERC was developed as an alternative contracting method to expedite environmental restoration. The contract's general scope of work allows greater flexibility to accomplish work than fixed price task orders, but also requires greater government oversight. IT Corporation is paid a fee and is reimbursed for whatever costs are incurred.

"Time is money," said Daniel Bowholtz, senior project manager at IT

Corporation. "You can sometimes predict time constraints, but in this type of work, things can change."

"The nature of what we're doing is constantly changing," said John Keiser, a project manager in Savannah District's Environmental & Support for Others Branch. "We're always uncovering new information or obtaining new data."

The clean-up is accomplished in two phases, investigative and construction. Both phases are being performed simultaneously at different locations on the site.

"All the parties involved want to do their part to restore the environment and to be able to report a success story to upper management," said Keiser. "IT Corporation wants to satisfy their customer, the Corps. Pratt Whitney wants to satisfy the concerns of EPA and the other regulators."

When a few participants of the project gathered at the site in January their common goal was apparent. Howard Levine, representing Pratt & Whitney, IT Corporation and Corps representatives were among those gathered. They toured four of the six solid waste management units (SWMU) on the site and discussed how to proceed in the clean up, each sharing his own perspective, knowledge and ideas.

"It's interesting to note the number of people and disciplines involved to accomplish remediation work said Keiser. "It often gets complicated. We have many experts that we rely on — geologists, chemists, contract specialists, technicians, engineers, industrial hygienists and other scientists are just a few in the Corps offices and at IT Corporation who support us in our decisions."

Jacksonville takes the lead role in this project because of the way FUDS is divided into geographic districts. As the project manager, Jacksonville's Robert Bridgers has overall responsibility of

the clean up. George Cooper, also from Jacksonville District, is the contracting officer's representative and manager for construction activities. John Keiser is the

contracting officer's representative for investigative and all other activities of the project. Both Keiser and Zainul Kidwai, the project geologist, manage the project's technical direction.

The six SWMUs are positioned within a one mile radius of each other and are all approximately two acres in size.

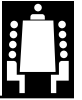
Two of the SWMUs are ponds, one a 12-acre carbon pond and the other a 10-acre retention pond. Current surface water samples indicate no contamination. However, monitoring wells will be placed around the perimeters of both ponds for future investigation of ground water. SWMUs 3 and 67, drum disposal areas, had obvious drum remnants sitting on the surface, possibly containing hazardous waste. Ceramic-like balls were found at both sites. After an analysis of the balls, the drums and contaminated soil from around them, will be removed and later backfilled with clean soil.

SWMU 91, a former tank site where bunker C oil (oil used to make liquid hydrogen) was spilled, the clean up is almost complete. The previously stored material leached from the tank into the environment producing a tar-like layer over and under the land surface. Monitoring wells will be installed and groundwater samples taken after the immediate concern, removing the contamination's source, is completed. After the samples are tested for contamination, the sample results and further actions to be taken will be discussed with EPA.

SWMU 13 contains an underground storage tank and incinerator. The tank, incinerator, debris, piping surrounding the tank and soil surrounding the tank containing an oily substance will be removed.

But not all contamination being removed is considered hazardous. Contaminated soil and debris from SWMUs 3 and 67, the drum disposal





Interstate technology and regulatory cooperation expedites use of innovative technology

by Jeff Breckenridge

Innovative Technology Advocates (ITAs) from the Corps of Engineers have been actively involved with the Interstate Technology and Regulatory Cooperation (ITRC) to assist states and federal agencies in identifying and eliminating government barriers to the use of innovative technologies.

The ITRC is a state-led, national coalition with the mission of focusing on creating tools and strategies to reduce interstate barriers to the deployment of innovative hazardous waste management and remediation technologies. Originating in 1995 from a previous initiative by the Western Governors' Association, the ITRC has expanded to include the environmental agencies of more than 25 states, three federal partners, public and industry stakeholders, and two state associations — the Western Governors' Association and the Southern States Energy Board. The ITRC is now affiliated with the Environmental Research Institute of States (ERIS), a subsidiary of the Environmental Council of States (ECOS).

The ITRC has developed 24 guidance documents intended to help regulatory

staff, technology developers, technology users, and other stakeholders in the deployment of the innovative technologies including: In-Situ Bioremediation, Low Temperature Thermal Desorption, Permeable Barrier Walls, Expedited Site Characterization, and Metals in Soils. These guidance documents are categorized into three areas:

● **Technical/Regulatory Guidelines:**

These guidance documents reflect a consensus of state technical/regulatory concerns that should be considered when approving the use of a specified technology or in demonstrating a technology. Documents of this nature are formally circulated to the state environmental program managers to seek their concurrence to use the proposed guidance.

● **Technology Overviews:** These documents may come in the form of status reports on emerging technologies, description of how state regulatory practices treat certain types of technologies, or a state regulatory perspective and input into guidance documents developed

by other complimentary organizations.

● **Case Studies:** These documents may come in the form of benchmarking of state practices in areas such as the demonstrating and approving the use of environmental technologies, as well as documenting state approaches to implementation of various programs and policies. These case studies often identify barriers to the deployment of innovative technologies and sometimes offer preliminary findings.

The Corps of Engineers ITAs actively participated in the production of ITRC guidance documents by providing a technology implementer's perspective to the ITRC process in the form of technical expertise, recommended reference documents, technical review and supporting guidance from other federal agencies.

There are both technical and regulatory benefits to installation remediation projects due to familiarity with the ITRC and ITRC products. The benefits include: fundamental technical information and recommended references on specific technologies, guidance on regulatory issues associated with a particular technology, regulator confidence in the guidance due to multi-state consensus, and unprecedented access to a network of multi-state experiences with a technology, and ultimately expedited regulatory understanding and approval of innovative technologies.

For more information on the ITRC, please contact Jeff Breckenridge, at (402) 697-2577, fax (402) 697-2639, e-mail jeff.l.breckenridge@usace.army.mil or visit the ITRC website at <http://www.sso.org/ecos/itrc>. **PWD**

Jeff Breckenridge is an Innovative Technology Advocate at the Corps of Engineers Hazardous, Toxic, and Radioactive Waste Center of Expertise.

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areas, have been characterized as non-hazardous and will be deposited in a permitted landfill with a liner system to prevent leakage.

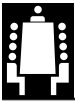
The waste at SWMUs 91 and 13, petroleum sites, will be handled as petroleum contaminated waste. Contaminated debris such as concrete, rubble and piping will be disposed in a permitted landfill, however, the contaminated soil will be treated by low-temperature thermal desorption.

In this process, soil is burned at 450 degrees for one hour, according to Glenn Quarles, project task manager at IT Corporation. Additionally, to insure all petroleum hydrocarbons are burned, the soil is "zapped" again for a few minutes, but this time at 1700 degrees. This residue, now clean dirt, can be recycled and is often used as an ingredient for asphalt.

The construction phase of the work could be completed as early as March 1999. But if EPA requires, remediation or continued monitoring of groundwater at some locations could continue.

POC is John Keiser, (912) 652-5687, e-mail: john.e.keiser@sas02.usace.army.mil **PWD**

Nancy Gould is a public affairs specialist in the Public Affairs Office at Savannah District.



Army seeks to streamline historic property management

by Karen J. Baker



Historic gate at Fort McCoy, Wisconsin

The Army has drafted a new regulation to streamline the way installations manage their historic properties.

Every Army action that affects any historic building or archeological site — such as maintenance, repair, rehabilitation, lease, sale, transfer, privatization, restoration, demolition, new construction or excavation — is subject to extensive reviews, comments and consultations with federal and state agencies, and other “stakeholders” under Section 106 of the National Historic Preservation Act and its implementing regulation, 36 Code of Federal Regulations (CFR) 800.

The Army, in conjunction with the Advisory Council on Historic Preservation (ACHP), has drafted a new Army Section 106 Counterpart Regulation that aims to streamline these regulatory procedures, leverage existing internal Army and Defense Department pro-

gram requirements, and allow installations to internally manage their historic properties in a more efficient and cost-effective manner.

Without the new Army Counterpart Regulation, installations are subject to the existing five-step process in 36 CFR 800 when conducting many mission-related activities. The process involves State Historic Preservation Officer (SHPO) and/or ACHP review and consultation at every step. In many cases, this can be a complex, time-consuming task for the installation.

The Army Section 106 Counterpart Regulation has recently undergone its second revision and has been distributed to major Army commands and a number of other affected organizations for comment.

In addition to these Section 106 procedures, existing Army and DoD internal management systems and program requirements — such as Integrated

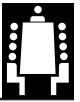
Cultural Resources Management Plans (ICRMPs), Environmental Compliance Assessment System (ECAS) auditing and the Environmental Quality Report (EQR) — are also required but are not currently part of the Section 106 compliance process.

Fundamental Change

The Army Counterpart Regulation provides a fundamental change to the existing process. It leverages the existing internal management systems and program requirements by integrating them into the Army’s counterpart compliance procedures.

The regulation’s designers said several benefits result from tailoring the Section 106 process to existing internal program management requirements. Installation commanders will obtain greater flexibility in project implementation and reduced information reporting, as well as the ability to self-regu-





late. The result will be cost savings through greater program efficiency, consistency and standardization, and avoidance of costs and delays that are part of the current 36 CFR 800 process.

Under the proposed Army Counterpart Regulation, each installation prepares its Integrated Cultural Resources Management Plans in consultation with the SHPO and other affected parties, and each is certified to operate under the ICRMP by the Army and ACHP for five years. These integrated management plans are already required by Defense Department and Army policy. Certified installations then implement

their actions in accordance with the standard operating procedures spelled out in the management plan, for the five-year period, without further SHPO or ACHP project-by-project reviews. The installation commander regulates his or her own installation during the five-year certification period with annual reporting through the EQR, and Section 106 compliance monitoring through the ECAS. The Integrated Cultural Resources Management Plan and standard operating procedures are revised after each five-year period for recertification.

"It's time for the Army to take the

training wheels off," said Chuck Wright, staff officer for the Army Directorate of Environmental Programs, speaking to a group of cultural resource specialists and property managers at the recent Historic Properties Cost Reduction Workshop in San Antonio, Texas.

"The NHPA is a process for implementation. What is important for the Army is for feasibility and practicability to rule," Wright said.

Meeting a Need

The need for a more effective approach to historic property compliance is imminent. Due to extensive construction during the Cold War era in the 1950s and 1960s, about 73,000 Army buildings will reach 50 years of age over the next 20 to 30 years and will be subject to Section 106. Section 106 compliance requirements will greatly increase for the Army in that time period, according to Dr. David Guldenzopf, chief of the U.S. Army Environmental Center's Cultural Resources Section.

The Army Counterpart Regulation was first distributed for review in April 1998. The National Trust for Historic Preservation, State Historic Preservation Officers, the National Conference of State Historic Preservation Officers, the Advisory Council on Historic Preservation, federally recognized tribes and all Army major commands provided comments.

The comments from many of the reviewers outside the Army have convinced Guldenzopf that the counterpart regulation is on the right track, he said.

The National Trust for Historic Preservation has endorsed the goals of the proposed regulation. "In our view, the concept behind this regulation is truly an example of 'reinventing government' at its best," said Richard Moe, president of the National Trust, in a letter to MG David A. Whaley, the Army's former Assistant Chief of Staff for Installation Management.

At the time this article was prepared, the third revision of the regulation was expected to be completed in March, with a final draft complete and approved by the Army and ACHP by the end of this summer. **PWD**

Karen J. Baker is a public affairs specialist at the U.S. Army Environmental Center.

CERCLA Five-Year Review Program

by Greg Mellema


In accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), remedial actions, which do not achieve unrestricted use cleanup levels, must be reviewed no less often than every five years after the initiation of the selected remedial action. This is to assure that the remedial actions are still protective of human health and the environment.

The five-year review program, as described in EPA OSWER Directive 9355.7-02A, is intended to meet the NCP and CERCLA requirements. The Assistant Chief of Staff for Installation Management (ACSIM) has also put out a memo outlining the rationale for conducting five-year reviews at Army installations (ref SFIM-AEC-ERO, July 17, 1998, Subject: Guidance for U.S. Army Compliance with CERCLA Five-Year Review Requirements at Army Installations).

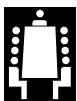
The U.S. Army Environmental Center (AEC) intends to distribute a memo each year notifying affected installation/MACOMs that a five-year review is needed in the next fiscal year. The list of installations will be determined from the DSERTS database using a field showing completion dates for Record of Decisions (RODs) and Decision Documents

(DDs). In the future, it is anticipated that the DSERTS database will be modified to key off the actual Remedial Action (RA) construction start date, since this reflects the actual five-year review trigger date.

Installations are responsible for assuring all five-year reviews are conducted in accordance with the NCP and CERCLA. Installations with potential five-year review sites are encouraged to work with AEC and the local USACE military District to assure proper long-term remediation of these sites. The Corps of Engineers HTRW Center of Expertise has assisted EPA in developing a five-year review checklist for landfill cover systems and has participated with Corps Districts on several Superfund site evaluations in the past year. Lessons learned during the site reviews have provided valuable insight regarding appropriate staffing, level of detail, and typical costs of a five-year review.

 If you have questions or require further information regarding the five-year review process or HTRW-CX capabilities, please contact Greg Mellema at (402) 697-2658, FAX: (402) 697-2673, e-mail: gregory.j.mellema@usace.army.mil **PWD**

Greg Mellema is a civil engineer in the Geoenvironmental & Process Engineering Branch of the HTRW Center of Expertise.



Alternative for traditional RCRA permits for remediation wastes

by Beverly VanCleaf

Great news for those undertaking cleanup actions that require a RCRA treatment, storage, or disposal facility (TSDF) permit. On 30 November 1998 EPA finalized a rule entitled, "Hazardous Remediation Waste Management Requirements." It was published in the Federal Register at 63 FR 65874. One of the key provisions of the rule allows remedial action plans (RAPs) to be used in lieu of traditional "Part B" RCRA permits for treating, storing, or disposing of hazardous remediation waste.

Previously, treatment, storage, or re-disposal of hazardous remediation waste required the same type of RCRA permit as a TSDF engaged in managing process wastes. The formidable task of obtaining a RCRA permit, which often times takes several years, was enough to cause many decision makers to select less efficient or less protective cleanup options not requiring a permit, over cleanup actions requiring a RCRA permit.

Now, through the use of RAPs, the permitting process is expedited, leading to more effective, efficient cleanups. The RAP:

- Reduces information requirements for the permit application.
- Streamlines the permitting process itself.
- Replaces detailed standards applicable to Part B permitted facilities with broader, performance-based standards developed on a site-specific basis.

The RAP will resemble a CERCLA "record of decision" or work plan approval rather than a typical RCRA "Part B" permit. It should be used in areas of contamination or in close proximity. However, under special circumstances, RAPs can even be approved for off-site locations.

In a related provision of the new rule, another major disincentive from

obtaining a RCRA permit was also removed. Previously whenever a RCRA permit was issued, corrective action requirements were imposed facility-wide. This requirement has been removed for remediation waste management sites. Therefore, persons obtaining a RCRA permit for remediation waste, whether via a RAP or a traditional TSDF permit, can do so without taking on facility-wide corrective action.

So RAPs are expected to offer an excellent incentive for remediation, but there are some restrictions:

- RAPs can not be used to permit combustion.
- RAPs are only for remediation waste, not for "as generated wastes" (process wastes).
- RAPs for off-site locations must still meet the minimum location standards for traditional TSDFs in 40 CFR 264.18 (outside the 100-year flood plain, away from fault lines, etc.).

The process of obtaining a RAP is summarized as follows:

A complete, but abbreviated application is submitted to the Director (EPA or State implementing agency). The Director prepares a draft RAP or notice of intent to deny, a statement of basis, and an administrative record; and makes the information available to the public. The Director sends

a notice of intent to approve or deny to the applicant. The Director publishes a notice in the newspaper, broadcasts intentions over local radio, and sends a notice to local governments regarding the RAP application. If opposition is received, a public hearing is held.

The Director responds to significant comments, issues a final decision, and compiles a complete administrative record for the action. The RAP is issued or denied.

RAPs provisions are effective on June 1, 1999, for the three States that do not have final authorization for the base RCRA program (i.e., Alaska, Hawaii, and Iowa). It will take some time for other states to modify their programs to adopt similar provisions. They are expected to do so because it will facilitate cleanups. However, because RAP provisions are less stringent standards, adoption is optional.

POC is Beverly VanCleaf, (402) 697-2559. **PWD**

Beverly VanCleaf is an Environmental Regulatory Specialist at the USACE Hazardous, Toxic, and Radioactive Waste Center of Expertise in Omaha, Nebraska.





Transportation Systems 2000 (TS2K) Workshop

Where will you be in February of 2000? Consider attending the Transportation Systems 2000 Workshop in San Antonio, Texas. The Army, Air Force and Navy will present the workshop on 29 February – 2 March 2000. Pavement seminars will be available on 28 February. The workshop will provide information and training through general sessions and “hands-on” seminars on military airfields, roads, and railroads for the design, maintenance and construction engineer.

For the latest information about the workshop, go to the TS2K homepage at <http://www.transportation2000.com>. There is a link on the homepage that registers you for an e-mail group. Submitting your name and other vital information, such as e-mail address, will put you in the e-mail group and entitle you to workshop reminders via e-mail. Fill out the mailing list registration on the homepage or submit your e-mail address to mary.j.adolf@usace.army.mil. If you can't access the homepage and need more information about the workshop, contact Mary Adolf, USACE Transportation Systems Center, (402) 221-7265. **PWD**

AEDA training

In May 1998, DOD revised the requirements for Qualified Recycling Programs (QRP) to conduct direct sales of expended brass and mixed metals gleaned from range clearance. The revised requirements are intended to ensure that only materials which have been certified as safe will be sold through the QRP.

A key component of the new requirements is training for QRP personnel. The Army has developed a QRP AEDA (Ammunition, Explosives and Dangerous Articles) Workshop to meet this requirement. QRPs which do not have at least one person who has attended this course by the end of FY99 will lose the authority to conduct direct sales of expended brass and mixed metals gleaned from range cleaning (ACSIM memorandum dated 13 Oct 98).

The next session of the AEDA Workshop will be held 4-5 May 1999 in Huntsville, Alabama. To register for the course, contact Ms. Joy Rodriguez, (256) 895-7448. The course number is 444, and tuition is \$275. Subsequent sessions will be announced on DENIX. **PWD**

Tentative List of Installation Support Offices and ISC Personnel Transferring

ISO Office 1: CENAD

- Fort Hamilton, NY
- Europe
Winston Jones

ISO Office 2: CESAD

- Savannah, GA
Robin Banerjee
Ed Irish
Scott Monaghan
- Mobile, AL

ISO Office 3: CEPOD

- Honolulu, HI
Richard Duong
David Bohl
Al Csontos

ISO Office 3: CEPOD (cont'd)

- Korea
Tom Spoerner
Jack Giefer

ISO Office 4: CESWD

- Dallas/Fort Worth, TX
Tom Luu

ISO Office 5: CESP

- Sacramento District, CA
Ron Niemi
Dennis Vevang
Jim Ledford
Steve Roberts
- Fort Irwin, CA
- Fort Huachuca, AZ

ISO Office 6: CELRD

- Louisville, KY
John Grigg

ISO Office 7: CENWD

- Kansas City, MO
Derrick Mitchell
- Seattle, WA

ISO Office 8: CEMVD

- Rock Island, IL

ISO Office 9: CETAC

- Kuwait

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